THE Soybean Digest

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EDITOR'S DESK

Unbalanced Committee Names of the men appointed to the soybean and flaxseed advisory committee to the Research and Marketing Act of 1946 are carried in a story on page 30. It is our understanding that the committee was to meet in early April.

Immediately upon announcement of the committee membership we took the liberty of pointing out to the acting administrator of the Act that out of a committee membership of 11 persons only two are soybean growers, with a third classified as a grower-processor. Seven members of the committee represent soybean processing companies. With 180 soybean processors in the nation, and with several hundred thousand growers of soybeans, it would appear that processor representation is unduly heavy. There are two flax growers on the committee. A total of four growers, as balanced with seven processors, does not seem logical. Neither does it seem logical that Illinois, producing practically the same bushelage of soybeans as the next three highest ranking states, should have no grower representation on the committee.

It was our understanding that the 1946 Research & Marketing Act was promulgated to aid and assist the farmer in the production and marketing of his crops. The advisory committees then, in our estimation, should be appointed with representation from the men the act was designed to serve. Certainly there should be representation from the soybean processors, for the soybean crop is marketed through them, and any new or increased markets for soybean products will affect the processor as well as the grower. But we believe every soybean processor will agree with us that representation is weighted unduly in their favor on the present committee membership.

Action Is Needed An economy-minded Congress has failed, at this writing, to make any funds available for the administration of the 1946 Research and Marketing Act. In the original act provision was made for increasing funds, with provision for their use. No appropriation was made. Upon the reconvening of Congress it was felt that the funds would become immediately available.

Until an economy-minded Republican Congress makes funds available by appropriation, the Act can be nothing more than a skeleton. That growers of soybeans should be asked to serve on the advisory committee and required to pay their own expenses in attending meetings, while they donate their time, does not contribute to attendance or interest. A soybean processing company can afford to pay the expenses of its representative. A grower of soybeans can only dig down deep in his jeans and regard the time and expense as his contribution to progress. It should not be so.

Need Movie on Soybeans Throughout the great Midwest area, down in the Delta and in the Eastern Plateau sections, soybeans are one of the important and established crops. Yet there are many people who are unfamiliar with the production practices which bring maximum yields.

Each year the American Soybean Association receives a large number of requests for a motion picture film on soybean production, handling and processing, for showing to farm groups. To our knowledge there is no such film available at the present time from either public or private agencies.

To commercial organizations serving the soybean industry we would recommend the preparation of such a film. We can assure a widespread and interested audience, and numerous showings by agricultural agents, agricultural instructors, and others serving the farm groups.

—s b d—

NEW OHIO DIRECTOR

We present W. G. Weigle, manager, Marsh Foundation Farms, Van Wert, Ohio, who with Glenn McIlroy, Irwin, Ohio, will represent soybean interests in the eastern end of the soybean belt.

Mr. Weigle got his start with soybeans when Ito San was the leading variety in northwest Ohio and soybeans were harvested with the binder and threshing machine. How many soybean growers remember that the seed of Ito San cost $4.00 per bushel and was hard to get back in those days?

Ever since those early days, Mr. Weigle has been identified with soybean progress. He pioneered with new varieties and variety testing in the early 30's at Marsh Foundation Farms and with a local committee, originated the idea of a soybean meeting to promote better methods of production and better use of the new varieties: as well as to foster the best of market relationships with local elevators and soybean processors. This meeting is now an annual affair at Van Wert, and is know as the "Soybean Round Up."

Being interested in new improved varieties, Marsh Foundation Farms, under the guidance of Mr. Weigle, have become the largest producers and distributors of soybean seed in Ohio, handling many thousands of bushels each season. Besides soybeans, hybrid corn, seed oats and seed wheat are also produced and handled in quantities of five figures.

Mr. Weigle is now president of the Van Wert Rotary Club and is a past president of the Ohio Seed Improvement Association and the Ohio Society of Farm Managers. He was graduated from Purdue University in 1919 with a B. S. in Animal Husbandry, and in 1932 with an M. S. in Farm Management. In 1940, he was honored by selection as an Ohio Master Farmer.

If you want to learn about soybeans in Ohio, "Ask Weigle, he knows his beans".

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GROWERS

Cost of Producing

Farmers in central Illinois have been keeping cost records on their crops in cooperation with the University of Illinois continuously for the past 34 years.

Their cost records show that today farmers in the cash-grain area of Illinois produce a bushel of corn with 6 minutes of man-labor where 34 years ago 32 minutes were required. A bushel of soybeans is produced with 10 minutes of man-labor, though it required 50 minutes in the early 1920's when soybeans were becoming established on Illinois farms.

It costs about $3 an acre less to produce soybeans under present conditions than it did in the early 1920's. This is due mainly to changes in methods of growing and harvesting the crop. It costs only half as much and takes one-fifth as much time to produce a bushel of beans as in the early 1920's.

This decrease in cost and man-labor has come about mainly through the use of power machinery and better varieties which yield more per acre even though soil fertility is going down.

Bushel-cost of producing soybeans is going up, however, Wilcox points out. "Our land is being cropped too heavily to corn and soybeans. Soybean yields are declining on the average Illinois farm and costs are increasing and will continue to increase because more manure and fertilizer are needed to keep yields at a high level.

"In the next few years the lowering of costs in the production of crops will be uppermost in the minds of most farmers. It is well to build up soils now so that yields can be maintained when market prices may not be as favorable as they now are."

Ogden High Yielder

Ogden was the highest yielding seed variety of soybeans during the years 1943-45 at the South Carolina Experiment Station, according to the Station's annual report.

Variety tests have been carried on at Clemson and at the branch stations since 1943 in cooperation with the U. S. Regional Soybean Laboratory.

The 3-year average yield for Ogden was 34 bushels. This compares with: Manredo 27.5; Arksoy 2913 27.4; Volstate 26.2; Rose Non-Pop 25.3.

Rose Non-Pop has been grown only 2 years in the test at Clemson but appears to be very similar to Ogden. CNS is a non-shatter selection from the Clemson variety. The original Clemson soybean was an excellent variety but shattered badly.

Chemical analyses showed an average of 41.9 percent of protein and 20 percent of oil in the 14 varieties reported. The protein content varied from 38.9 for N41-90 to 44 percent for Ralsoy. The percentage of oil varied from 17.3 for Monetta to 22.8 for N41-90.

Iowa Contest

The Iowa 5-acre soybean yield contest, revived last year, will be held again in 1947 following action by the contest committee of the Iowa Corn and Small Grain Growers' Association.

The committee reports that both producers and processors in the state have shown marked interest in the contest. The 1946 contest had three times more entries than the previous contest.

The Iowa Soybean Processors' Association will award $470 in cash prizes to winning producers throughout the state. The state winner will receive a trophy and $50. Gold medals and certificates will be given to other yield winners.

How to Up Yields

Average yield of soybeans could be increased 5 to 7 bushels an acre in sections of Oklahoma if adapted varieties were planted, reports the Oklahoma Agricultural Experiment Station. The Station has conducted variety tests at several locations.

The Station also reports that seed treatment of soybeans to control diseases has produced no increase in either stand or yield.

LETTERS TO THE EDITOR

Soy Milk in China

TO THE EDITOR:

It may be of interest for you to know that I am the founder of the Hong Kong Soybean Products Co. Ltd., which engages in the production of fresh soybean milk for local distribution. It was established in 1940 and just before the outbreak of the Pacific war, our "Sunspot Soya Milk" had daily sales of 13,000 to 15,000 one-half pint bottles of milk. The factory was forced to close down during the occupation but started again last summer.

The main object of our Company has been the turning out of highly nutritious soybean foods at the lowest cost for the benefit of the majority of the working class who otherwise are barred from obtaining cow's milk and milk products due to their high cost. A half-pint bottle of fresh cow's milk costs 50 cents whereas our soybean milk is

Head and Shoulders Above the Crowd

Speeds Soybean Harvest

● Every year the Case "A" combine climbs higher in the respect of the men who grow and who buy beans. Good seasons and bad, it has proved its ability to keep going more consistently, to harvest more beans while conditions are good, and to make the most of a crop when conditions are bad. The years also have proved that the "A" has Case ENDURANCE—long working life with low upkeep.

Among the reasons for the amazing capacity of this 6-foot combine are its cylinder, proportioned for windrowed crops as well as standing grain, and with positive control of speed and clearance . . . full-length rack with a separating motion perfected through a hundred years of development . . . and Air-Lift cleaning that keeps sieve openings clear of trash, lets seed fall free. Power-driven reel and non-clog steel-finger grates play their part in capturing every possible pod and in handling wet or weedy material. See your Case dealer now about getting an "A"—the combine that stands head and shoulders above the crowd.

Other Case Combines to handle larger acreages of beans and grain are the 9-foot "M" and 12-foot "K." Both have auger-type headers, power controlled. Both are built to work regularly at 3½ to 4 miles an hour, getting extra capacity from the speed of modern tractors. All Case combines are efficient for harvesting seeds of grasses and legumes. Production of "A" combines has been in full swing for many months, but thousands of farmers want them. Write for catalog; mention also any other farm machines, implements or tractors you need. J. I. Case Co., Racine, Wis.

CASE

sold for only 20c per half-pint.

We find the school children and the working class are our best customers, although we also care for the needs of the hospitals. We are still supplying a very substantial quantity of our milk daily to Queen Mary Hospital which is the largest government hospital in Hong Kong.

We first started in the manufacture of fresh soybean milk under modern sanitary and scientific process, hoping to advance to the manufacture of condensed and evaporated soybean milk in tins, and finally to milk powder. We were experimenting in the making of the condensed soybean milk when the war intervened. We propose to continue with this experiment as soon as circumstances permit, and the required equipment can be brought over from the United States.

If there are firms who are interested in setting up plants in China for the manufacture of soy milk powder, and condensed and evaporated soybean milk in tins, we are most willing to cooperate.

There are immense possibilities for such an industry as soybean food products in China which is the home of the soybean and where the major part of the population is too poor to have access to cow's milk and its products. A double opportunity awaits those who wish to render a real service to mankind and make a business for themselves.—K. S. Lo, China International Commercial Co., Ltd., Hong Kong, China.

On Price Support

To the Editor:

I hear by radio that the support price is the same as 1946. This sure won't get many acres out. We plan on about 100 acres for this year. They will all be Lincoln.

Had 40 acres of Earlyana last year. No more for me. They lodged so much worse than the Lincoln.

Yours for more and better soys.—Gustav F. Lueshen, Roadside Gardens, Wisner, Nebr.

In Mississippi

To the Editor:

I harvested 600 acres of soybeans in 1946. Will increase my order some this year. Indications now we will have a big increase in Leflore County in 1947.—E. W. Chatham, Money, Miss.

AS THE PRESS SEES IT

Wonder Child

The wonder child of industry, the soybean, nourished to world prominence in the Midwest, is now following the honored procedure of carrying coals to Newcastle. This valuable product, once imported from China, is now supplying civilian relief for that sprawling, starving country. Tons of soy flour will feed the Far East, to provide a basic diet.

Thrilling indeed is the industrial saga of the bean. It supplies the oils essential to manufacture of paints, varnishes and lacquers. Countless articles already are produced from this source and there is little reason to doubt that automobile bodies will be stamped from strong, tough sheets of plastic material emanating from the heart of America.

Indiana plays a leading role in this amazing industrial agricultural drama. It ranks third in acreage and yield of soybeans. Last year it produced 25,800,000 bushels, topped by Illinois with 69,388,000 and Iowa with 32,021,000 bushels. Ohio ranked fourth with 17,000,000.

Hoosierdom's average yield per acre has increased during the last two years over the 1935-44 average, due to improved varieties, methods and good weather. Acreage also has been greater.

The Department of Agriculture has asked farmers of the country to plant 11,244,000 acres to soybeans this year, more than 1,500,000 above the 1946 total. Financial profits and a notable part in growing technological and chemurgic achievement will be the proud contribution of Indiana's fertile acres. —*Indianapolis Star.*

Millions Wasted

Ohio housewives lose nearly 7 million woman-hours a year coloring oleomargarine, allowing 10 minutes per pound, the Ohio Senate commerce and labor committee was told at hearings opened on a bill to permit the manufacture and sale of colored oleo in this state.

A large group of housewives and manufacturers of margarine and their representatives attended the hearing, set aside for proponents of their bill.

N. B. Betzold, Cleveland, of the Durkee Famous Foods division of the Glidden Co., told the committee that approximately 40 million pounds of margarine are used in Ohio each year.

Betzold exhibited bottles and packages of candy, cookies, colored cherries, hot sauce, imitation molasses, oranges and soft drinks to show that sale of these artificially colored articles is permitted in this state while sale of colored margarine is prohibited.

Ed D. Schorr, attorney, representing the Churngold Corporation, Cincinnati, said the present prohibition against colored oleomargarine was passed a number of years ago to give dairy farmers a monopoly. —*Ohio State Journal.*

CASE HISTORY No. 14
One in a series of factual experiences of a group of American manufacturers with Multiwall Paper Bags.
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CONTAINER COSTS
SAVINGS
MULTIWALL BAGS
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CORROSIVE
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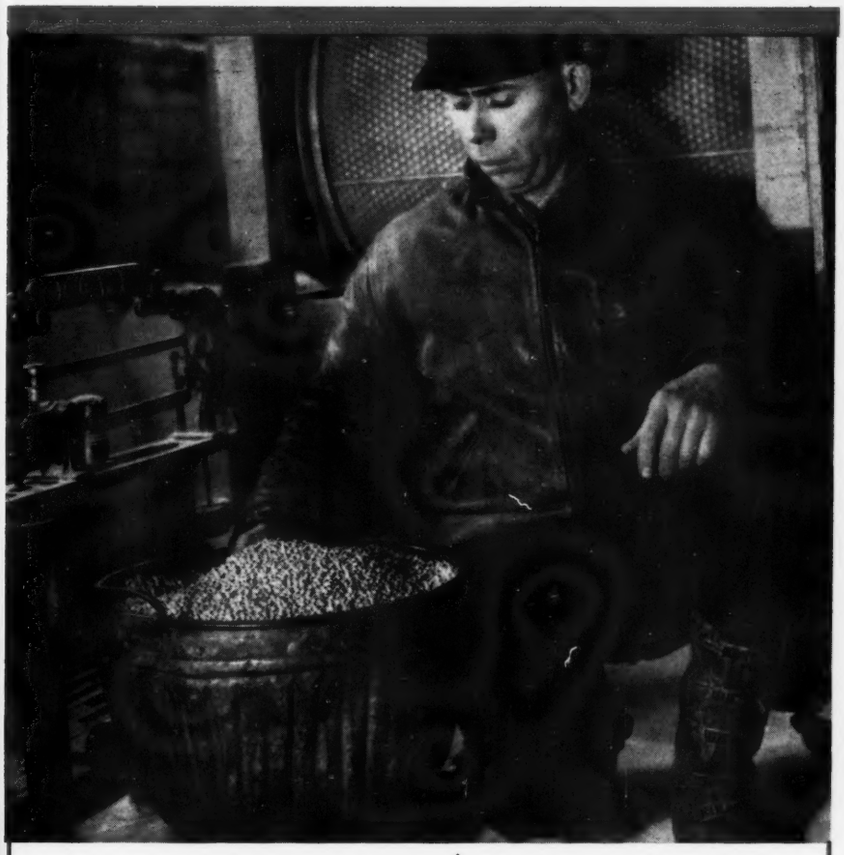
ST. REGIS PACKAGING SYSTEMS are designed to meet a wide range of product requirements and plant layouts. Packers are available in a variety of sizes and types, with filling speeds as high as twenty-four 100-lb. bags per minute—with one operator. Nearly 400 commodities—rock products, fertilizers, chemicals, foods, and feeds—are now being packaged in sturdy, low-cost multiwall paper bags.

HOW THE *Champs* GROW SOYBEANS



HOW IT WAS DONE

Here you see John Knudson of Albion, Iowa, soybean yield champion for 1946, with a sample of his Lincolns. His yield —52.26 bushels—was an alltime record for Iowa soybean yield contests.

How did he do it? A look at the record reveals some interesting things:

Knudson's winning field was an old hog pasture in a high state of fertility. The land was flat. He fall-plowed and applied 300 pounds of 3-12-12 fertilizer to this field.

The champion planted the Lincoln variety and he inoculated the seed.

The crop was planted May 13, in 21-inch rows with a grain drill. Rate was 2½ bushels per acre. Knudson cultivated twice following planting.

All grower surveys indicate that Lincoln is probably the highest-yielder of all varieties in the area in which it is adapted. They also indicate that soybeans do best when inoculated and when planted in highly fertile soils. And comparatively narrow rows tend to turn out higher yields than do corn-row widths.

It would appear that Knudson gave his beans all the breaks.

Verle E. Steele of Table Grove, 1946 Illinois champion, had a yield of 46.43 bushels per acre. Like Knudson, he grew Lincolns and inoculated the seed; and planted in 21-inch rows with a grain drill. But Steele used much less seed—1½ bushels per acre.

He believes the variety and the narrow rows were the secret of his high yield. He uses a clover-corn-corn-soybeans rotation. The soil was limed. He did not apply any fertilizer directly to the soybean crop, though he uses it in the rotation.

Steele says weeds are a problem in his part of Illinois. He gave them rough treatment. His program included disking twice, harrowing once and culti-mulching before planting; and the harrow and rotary hoe, and two times over with a bean cultivator afterward.

How do Iowa farmers grow soybeans? What methods get the best results?

Surveys in this state have not been extensive enough to speak with authority on the subject. But we do know some of the practices followed by the 101 growers who competed in the 1946 Iowa Soybean Yield Contest.

The yield contestants, of course, are far from average growers. The average of their contest acres was 36.8 bushels per acre, or a whopping 13.8 bushels above the state average last year.

The great majority of the Iowa contestants grew their soybeans about as follows last year:

77 grew Lincolns

82 followed corn with soybeans in the rotation

71 planted the last 3 weeks in May

73 sowed from 1 to 1-1/2 bushels of seed per acre.

76 used no manure or fertilizer directly on soybeans

94 inoculated the seed

98 planted in rows

72 spaced rows 35 to 42 inches apart and used standard corn planting and cultivating equipment

88 cultivated two or three times

All harvested with the combine

Soil and crop experts recommend most but not all of these practices.

There is no doubt that the large number of Lincolns grown is partially responsible for the much higher yields in 1946 than in past contests. Thirty-four of last year's contestants turned in yields of 40 bushels or higher. Yet even the state champions had never produced 40-bushel yields before 1946. At the time the last contest was held, in 1944, few fields of Lincolns were entered.

Of the 34 growers who produced 40-bushel yields last year, all but one grew Lincolns. The one entered Harbaros. Of 27 who produced from 35 to 39-bushel yields, all but three grew Lincolns.

On the other hand 16 contestants turned

in yields under 30 bushels; but only 4 of these grew Lincolns.

Experiment station men are not inclined to recommend following corn with soybeans in Iowa. They believe this practice loosens the soil unduly, and that it does not produce as high yields as when soybeans follow sod.

Eight growers planted soybeans after clover, alfalfa, meadow or pasture. Their average yield was 40.19 bushels or 3½ bushels above the general average of all the contestants. The seven growers who followed soybeans with soybeans did not do so well. They reported a bushel average of 29.93, almost 7 bushels below the general average. The four who followed oats with soybeans also got below-average yields.

Inoculation of seed has become standard in Iowa. Only seven of the contestants did not inoculate. Their yields were about a bushel below the general average. This result is about in line with broader surveys taken in other states.

Six growers planted the first week in May; 30 the second week; 33 the third week; and 18 the last week. Growers planting the first and third weeks got highest average yields but the difference is probably not significant. The eight contestants planting in June had average yields.

Surveys taken by J. W. Calland of Central Soya Co., Inc. in Illinois, Indiana and Ohio, do not indicate an advantage in yield for any May or June planting date, at least in the years taken.

Higher rates of seeding up to 1¾ bushels per acre resulted in higher yields than the lower rates, though the difference may not be significant. Some experiment station work does not indicate that higher rates of planting result in higher yields, except that heavier stands may control weeds better than lighter stands. One large Illinois producer, H. I. Cohn of Carrollton, says he gets better yields with Lincolns when he

Adapted Varieties

Map below lists the best, highest producing varieties which may be expected to mature in each state, as recommended by the state experiment stations.

uses considerably under a bushel of seed per acre. A single Iowa contestant who used ¾ bushel of seed per acre averaged 40.13 bushels.

The one-fourth of the growers who applied manure or commercial fertilizer on the soybean crop obtained above-average yields. The 15 who applied manure obtained 38.49 bushels; the 8 applying 200 to 300 pounds of 0-20-0 averaged 38.83; and the 2 using 3-12-12 averaged 47.47. But the latter included the state yield champion, John Knudson, whose yield was 52.26. It is not likely that fertilizer alone was responsible for this high yield.

The 76 growers who did not use any manure or commercial fertilizer on the soybean crop were in accord with standard practice. Most farmers believe that fertilizer applied to some other crop in the rotation produces better results. Iowa experiment station agronomists have not been able to consistently increase yields on college plots by direct applications of fertilizer to the soybean crop.

Most Iowa soybean growers still use corn planting and cultivating equipment on the soybean crop, and space the rows for this equipment. The 82 who planted in widths of 36 to 42 inches, obtained about average yields.

But growers who planted in narrower rows averaged higher yields. Some straddled the rows, planting two soybean rows where only row of corn would be planted. The Marshall County entrants — among them the state champion — drilled their beans in 21-inch rows with a corn planter. Their average yield was 41.41 bushels, or almost 5 bushels above the average of all contestants.

FEW DRILLED THEIR BEANS

The three who planted in 24-to-28-inch rows averaged even more — 43.94. And six who planted in 30-to-32-inch rows averaged 40.6 bushels.

Only three contestants drilled their soybeans solid. Their yield was 7 bushels below the general average.

These results agree with the Calland surveys which show higher yields for row over solid plantings; higher yields for narrow rows than for wide ones.

Almost all growers cultivated soybeans at least two times, and over half of them cultivated three times. The 30 who cultivated two times obtained the highest yield — 40.27 bushels per acre.

Only two growers did not cultivate at least once.

A few used rotary hoes and weeders as cultivating equipment.

Of course there are many reasons for high or low yields. No comparison is made here of soil types, and it is not safe to draw too many conclusions from the comparatively small number of growers in the state contest.

(Continued on page 34)

Some of the processors and growers at the March 14 meeting at Wooster.

OHIO GROUP MEETS AT WOOSTER

By DELMER E. GROVES

The soybean was king for a day in Ohio on March 14 when processors, agronomists, and growers of the state met for a 1-day conference at the Ohio Agricultural Experiment Station, Wooster.

The group heard reports from Experiment Station and University soybean specialists covering about every phase of the soybean from the time the ground is prepared for seed until the milk from mealfed cows is placed on the table for dinner. Only out-of-state speaker was J. Ward Calland of Central Soya Co., Decatur, Ind. Based on a survey made in northwestern Ohio, Calland indicated that seed supply should be sufficient to meet Ohio farmers' needs if the available stocks are properly distributed. The survey showed that farmers were planning to plant (as of January) 5 percent less acreage, but more of it would be planted in the row.

Headliner on the program was the Experiment Station's agronomy chief, Robert E. Yoder. Dr. Yoder estimated that there may be a place in Ohio agriculture for 15 to 20 million bushels of beans annually. However, it poses a rotation problem—soybeans should take the place of the row crop in the rotation, not the sod crop.

Considerable research on beans is underway at the Ohio Station including work on defoliation, weed control, varieties, and soil erosion, to mention only a few. Yoder announced that a new project in the nutrition and physiology of the soybean is underway as a result of a liberal grant-in-aid from Swift and Co. He explained that the life of the soybean is not an open book; there is much to be learned about its mineral and nitrogen requirements. The nitrogen factor may be critical in its blooming and fruiting habits.

J. D. Sayre, plant physiologist for the Station and the U. S. Department of Agriculture, displayed the *Geiger counter, a device used for measuring radioactivity in the atomic bomb tests,* which will be used as a tool in the study of the mineral nutrition of the soybean. The ability of this equipment to measure very minute quantities of elements makes it valuable in tagging the minor elements such as boron, manganese, and copper. Soybeans, says Dr. Sayre, have some very peculiar behavior in regard to the minor elements.

D. F. Beard, Ohio State extension agronomist, stressed the good cultural practices of keeping beans free from weeds, planting the right variety at a fairly early date, and maintaining a good soil building rotation. He announced that some of the new devices for soybean cultivation show promise. One is a machine that has the shovels set to allow for high speed cultivation when the beans are small without covering the plants.

Only 50 percent of Ohio's bean acreage is seeded to a desirable variety—Lincoln, Earlyana, or Richland—admonished Lewis C. Saboe, soybean breeder for the Station

(Continued on page 35)

Soybean nutrition studies at the Ohio Agricultural Experiment Station at Wooster.

A problem demanding further study is the relationship of soil conservation to soybean production.

PROBLEMS *in Growing and Marketing Soybeans*

By

WALTER W. McLAUGHLIN

President, McLaughlin Agricultural Service, Inc., Decatur, Ill.*

IN RECENT years we have seen two major changes in the agriculture of this region. One of these has been the full acceptance of hybrid corn; the other has been the coming of the soybean. The reason we have problems in connection with the growing and marketing of soybeans is because they are a new crop.

Soybeans have gained a place beside corn as a cash crop particularly in the surplus grain areas of east and central Illinois and in like areas of other states. The 1947 soybean harvest put over 200 million dollars in the pockets of Illinois farmers. In 1935 only about one-half of the soybean acreage in Illinois was harvested for seed. By 1943 the acreage harvested for seed had tripled and only about one-eighth of the total crop was cut for hay.

As a nation at war we were more than fortunate to have soybeans as a source of vitally essential vegetable oil. We are now unique among the large nations of the world in having an abundance of food, fats and oils.

Two factors have been largely responsible for putting soybeans on the profit side of the farmer's ledger. One was the broad strides made from 1920 to date by plant breeders in developing strains of soybeans with good yielding characteristics. In this period, soybean acre yields in the Cornbelt have about doubled. The other thing that helped make the soybean a profitable crop was the change that occurred in the methods and practices followed in growing and harvesting the crop. During the expansion of soybean acreage in the 1920's, the failure to control weeds adequately not only impaired yields but caused harvesting to be more time-consuming than it otherwise would have been. Improvement in cultural practices led to better control of weeds. To assist in handling the bean crop, came the increased use of rubber-tired tractors, rotary hoes, bean planters, bean cultivators and the combines. The result, in spite of a marked increase of soybeans per acre, was a decided reduction in the time required to grow and harvest an acre of the crop.

Today a bushel of soybeans is produced

• From a paper presented at the Soybean Conference at Peoria February 27-28. The president of the American Soybean Association outlines a variety of research problems that call for attention.

*Full credit must be given to the Staff of the College of Agriculture, University of Illinois, for the material they so generously furnished to help in the preparation of this paper.

with an average of 10 minutes of man-labor. It required 50 minutes in the early 1920's.

The University of Illinois College of Agriculture has conducted per acre cost studies on growing and harvesting soybeans in Champaign and Piatt Counties for the periods of 1922 to 1924; 1938 to 1940; and 1943 to 1945. A summary of their findings is as follows:

	1922-24	1938-40	1943-45
Total acre cost	$29.31	$15.57	$20.44
Yield per acre in bu.	16.4	28.7	24.3
Cost per bushel	1.47	.56	.84
Price per bushel	1.39	.69	1.96
Profit per bushel	-.08	.13	1.12

The future acreage of soybeans will depend not only on the level of prices of soybeans, but also on the relative prices of soybeans; i. e., the prices of soybeans in relation to corn and other crops which use the farmer's land, labor and capital. In the commercial corn and soybean areas of Illinois, it has been considered essential for soybean prices to be between two and two and one-half times the price of corn in order to make them competitive with corn. This relationship has been necessary under past costs of producing both corn and soybeans. If the cost of production of corn goes down faster than that of soybeans, obviously it will take a higher price ratio for soybeans to supplant corn. It seems logical to assume that beans will never become very popular in the livestock producing areas because farmers can see no advantage in selling soybeans and buying corn.

The upper limit to the market price of soybeans is fixed by the price that the consumer will pay for fats and oil, pork, dairy products, and other products using soybean oil and meal. The price received by the farmers is also affected by processing costs and competition within the processing industry. But, year in and year out the price of soybeans is likely to fluctuate with the ability of consumers to buy the products of the soybean. Their ability to buy is closely related to the national income level. We are not permitted to ignore the influence on soybean prices of changes in the quantities of other fats and oils and other food concentrates, particularly protein feeds.

Legislative discrimination against vegetable oils in the manufacture of margarine has the effect of keeping soybean prices lower. The supply of fats and oils is affected also by the foreign trade situation, particularly the quantity of imports of tropical oils. The dominant influence on prices, however, is the level of disposable income of individuals in this country.

A preliminary analysis of the affect of consumer incomes on the prices of soybeans, by Dr. G. L. Jordan of the University of Illinois, points to a rise or fall of about 20 to 22 cents a bushel for every rise or fall of 10 billion dollars in disposal income of individuals, that is, income after taxes, in this country after changes of supplies of fats and oils and by-product protein concentrates are taken into consideration. Giving equal weights to equal percentage changes in the supplies of edible fats and oils in this country and supplies of by-product protein concentrates per animal unit, a rise or fall of something like 15 cents a bushel can be expected for every 10 percent decrease or increase in the national supplies of the by-product feeds and edible fats and oils after changes in disposable income are taken into consideration. These figures are only approximate but point out the dependence of prices on both demand and supplies of competing products.

PRICE MAY DECLINE

The present prices of soybeans are the results of temporary conditions brought on as a result of the war. Prices probably would be higher than they are if exports were permitted. However, the goals for 1947 call for a very large increase in cotton and flax acreage as well as in soybean acreage. This would add to the supply of meal and oils. Lard production will probably also increase in the winter of 1947-48, and it is entirely possible that more fats and oils will be available from tropical regions, either for importing into this country or for satisfying the demands of European nations. It would seem reasonable, therefore, to expect prices of soybeans to decline in relation to corn and to decline in dollars and cents from present high levels.

Any expansion in industrial uses of either fats and oils or meal will help to maintain the acreage of soybeans. For that reason farmers should be interested in improvements in processing techniques, increased efficiency in marketing and any other improvements that will increase the demand for soybeans.

Few crops grown in Illinois have been so free from insect and disease damage as has been the soybean. Recently, however, new diseases have appeared which threaten to become a major problem. Disease damage has been most serious in areas where farmers have grown soybeans on the same fields year after year. This last year, diseases of soybeans were far more apparent than in any previous year.

Soybeans in their process of vegetative growth and seed production require large quantities of minerals, particularly calcium and potash, but their inherent ability to extract these minerals from the soil's native supply, makes the soybean less responsive to mixed fertilizers than most other crops. For illustration, we have applied 0-20-20 with a fertilizer attachment on a bean drill, without getting any noticeable increase in yield of beans, while on the other hand, with beans following corn in the rotation, we could tell to the row where the corn had a heavy application of fertilizer the previous year. This response to fertilizer was hard for us to understand. Even though the soybean does not seem

There is still much to be learned concerning the use of fertilizers in soybean production.

to utilize applied minerals effectively, the responsibility for returning the extracted minerals to the soil still remains. If this is not taken care of through good management and crop rotation, an ultimate soil depletion will result in gradually lowered yields.

The high mineral requirement of the soybean plant and its ability to forage for its nutrients beyond the range of other crops, tend to give it an undeserved reputation for being a soil robber, but as a matter of fact, when truly evaluated, that inherent ability makes it surprisingly suited to the Cornbelt cropping system. The soybean follows the corn crop as effectively as the porker follows the steer in the feed lot. If the steers are well fed, the hogs need little attention—likewise if the corn crop is well fed, the bean crop will need little or no fertilization.

PROVIDE FOR CLOVER

The problem then of returning plant food removed from the soil by the soybean crop becomes not one of direct fertilization of the soybean, but rather a matter of determining the needs of the entire rotation, and making the applications to those crops which can use them most effectively. When sufficient limestone, phosphate and potash is applied to meet the maximum requirements of the clover crop in the rotation, grain crops like corn and soybeans will be amply cared for, providing enough of the forage crop is returned to the land either as green manure or animal manures, and providing that a clover crop is grown frequently enough in the rotation. This unfortunately, is not the case on most land.

The foregoing discussion defines the need for a well-planned rotation for each farm. In a rotation, beans should be primarily considered as a cultivated row crop and not as a legume, since practically no nitrogen is returned to the soil even when the beans are combined and the straw left on the land. They are not a substitute for clover in the rotation. Much damage was done to Cornbelt soils in recent years due to the fact that many farmers got the false impression that just because the soybean was a leguminous plant, that it would take the place of clover in the rotation. So they grew corn and soybeans following each other again and again. By this exhaustive cropping system they depleted the soil of organic matter, and by so doing encouraged erosion.

There is no substitute for a well-planned rotation which includes clover often enough to maintain and build up the organic matter and nitrogen content of the soil. Soybeans fit in nicely along with corn and clover in a well-planned rotation, and have earned a permanent place in the future rotations on Cornbelt farms. Of course, if beans were plowed under they would add considerable fertility to the soil, but they are too expensive to be used as a soil-improving green manure crop. In wheat growing areas, wheat frequently is drilled right behind the combine. This is possible by using early maturing varieties of soybeans. However, when small grains follow soybeans, attention should be given to furnishing adequate fertilizer. Failure to do this will sometimes result in lowered grain yields and in poor clover stands following the small grain.

As mentioned earlier, the farmer has a definite problem of weed control in growing soybeans. To combat weeds, more and more growers are planting their beans in rows so that they may be cultivated much in the same manner as corn. Rowing increases the growing cost but decreases the cost of seed. On sloping land erosion is more serious in rowed beans than in drilled beans, unless the rows follow the contours. Rowed plantings do not lodge as badly, the quality of the beans is better, and yields are usually larger.

Even if yields were no larger, it would still pay to plant beans in rows and cultivate them, in order to better control the weeds. Furrow openers ahead of the planter work nicely with the bean crop, and assist in weed control and in keeping the bean ground level.

A number of the members of the department of agronomy at the University of Illinois have suggested the following problems that need further study in soybean production and management:

PROBLEMS FOR STUDY

1. Further study on seedbed preparation with respect to reduced costs by disking without plowing.
2. Additional research on types of inoculants—selection of better strains of inoculants.
3. Influence of soybeans in the Cornbelt rotation; effects on succeeding crops: early varieties to precede wheat in the rotation; encourage the manufacture of wheat drills with fertilizer attachments; straw chopping equipment on combines.
4. Special problems arising out of soil types—topography, etc.
5. Cultural practices: time of planting of certain varieties in different regions of the state; methods of planting with respect to varietal differences; width of rows (drilling vs. broadcasting); intercropping (legumes and grasses).
6. Problems of soil conservation practices in relation to soybean production (contouring, etc.)
7. Further studies on the use of fertilizers in soybean production (*variety* interaction*)—where to apply fertilizers (nitrogen, phosphorus, and potassium).
8. Harvesting as affected by methods of planting and cultivation.
9. Defoliation—types of defoliants—hail damage.
10. Trace element problems.
11. Storage.
12. Costs of production.

*variety x fertilizer interaction

Farm Managers Honor Burlison

—Illinois Extension News-Messenger.

Honoring Dr. W. L. Burlison (center), head of the Department of Agronomy of the University of Illinois for distinguished service to agriculture, is Walter W. McLaughlin (right), Decatur, Ill. McLaughlin presented Burlison with a plaque from the Illinois Society of Farm Managers and Rural Appraisers, at the annual farm and home week on the Illinois campus. He called particular attention to Burlison's accomplishments with both hybrid corn and soybeans. "He is our outstanding leader in the development of the soybean industry in Illinois and in the United States. Since Dr. Burlison became head of the department of agronomy, the soybean has grown from an almost unknown crop until now it is second only to corn in its importance on Illinois farms," said McLaughlin, who is president of the American Soybean Association. Karl F. Adams, Bloomington, president of the farm managers' society is at left.

PLACE OF SOYBEANS

in the American Agricultural Program

By CHARLES F. BRANNAN
Assistant Secretary of Agriculture

Presented at the Soybean Conference, Northern Regional Research Laboratory, Feb. 27-28.

SECRETARY Anderson once referred to the soybean as the glamour crop of American agriculture. But even glam our crops have their problems. That's what we are meeting here to talk over: the problems and the place of the soybean in the American agricultural picture.

Your program committee has given me a number of specific questions concerning the Department's attitude on soybeans. I'll take a shot at those but you know, of course, that I won't be able to answer all the questions. In some things, the Department's policy is not yet formed. We have a great many intangibles clouding the future outlook just as you do. But we can discuss some of the considerations involved in making policy on these questions. And I am sure that out of our discussion I can get some ideas to take back to the Department — ideas which will be of great help in making final decisions.

Most of our soybean problems of the moment stem from the war. You can't take an industry and balloon it up to the proportions of the soybean industry in just a few years without running into some thumping big questions.

One of the first problems we encountered, very early in the war, was how to give growers who expanded production of vitally needed crops assurance against a postwar collapse like that of 1920-21. That was where the Steagall amendment came in. Under this amendment we were enabled to place the bulwark of price supports squarely behind the huge expansion of soybean production we needed. This we did promptly. We supported the 1942 crop at a base price of $1.60 a bushel. This compared with an average farm price of $1.55 per bushel in 1941 and of only 90 cents in 1940. The 1943 crop was supported at $1.80 and the 1944 to 1946 crops at $2.04. The CCC board has just determined that this figure of $2.04 will still be in effect on the 1947 production.

A support program for at least 90 per-. cent of parity is guaranteed by the Steagall Amendment throughout 1947 an' 1948.

From a net importer of fats and oils, we became a net exporter. And the largest single reason was the miracle of soybean production. Soybean oil from the 1944 crop—and I might add again from the 1945 crop—constituted the largest domestic production of vegetable oil —even exceeding cottonseed oil which for a long, long time had always held the front rank spot.

CHARLES F. BRANNAN

Another wartime development was the purchasing of soybeans on an oil-content basis. It is perfectly obvious that the value of beans to the crusher depends mainly on the oil content. Beginning with the 1943-crop processor contracts, Commodity Credit Corporation made settlements with contracting processors on the basis of actual oil content as determined by chemical analysis. Prior to the '43 crop, CCC simply made a differential between high and low oil content beans. It is possible by designating equipment and methods used in oil content analysis and by closely supervising approved laboratories to be highly accurate in this analysis.

But unfortunately, these methods are practical only for large quantities; they are not applicable to determine oil content for the small quantities of soybeans farmers ordinarily bring to market. It appears to me some consideration can well be given to developing a practical method of determining the approximate content of small quantities. If such a method can be developed, which is both quick and cheap, it would permit the sale and purchase of soybeans in their true value for crushing.

There is just one other wartime development that I want to discuss. That is the use which has been made of soy flour and grits both in our Lend Lease food shipments and by UNRRA. The over-all figures

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for the quantity sent abroad by Lend Lease and UNRRA are as follows:

Full fat flour .....112 million pounds
Low fat flour .....368 million pounds
Soy grits .....177 million pounds

This is a very impressive total.

Now all this is history. But it is history that has meaning for the future. In view of these wartime developments — huge production, support prices, increase in processing capacity and so on—what is the outlook for soybeans to continue as a permanent crop?

The first thing that strikes one's attention is that the 1947 production is expected to be the highest in history. The acreage goal of 11¼ million acres for beans is 19 percent above the 1946 indicated acreage and 273 percent of the 1937-41 average.

The reasons for this high production goal are obvious. The world is still faced with a critical fats and oils shortage. Not only is the supply of food oils grossly inadequate, but the quantity of industrial oils is also in short supply. It's evident, therefore, that the immediate market for American soybean oil, both at home and abroad, is extremely favorable.

As for the probable soybean goal for 1948, naturally no one can make more than some most general observations. A great many factors must be reckoned with. Just off-hand I can think of these:

1. Domestic and world demand for fats and oils.

2. Weather conditions in vegetable oil producing countries.

3. Political stability in such foreign lands as Manchuria and the Netherlands Indies.

4. The ability of deficit countries to finance imports from the United States.

5. The size of the domestic cotton crop, and so on.

Under the circumstances it would be foolish to make a forecast. It does appear likely, however, that in view of expanding world fats and oils production the 1948 goal may not be as large as this year's, but should continue at a high level.

One of the questions your committee wanted me to answer was the possibility of acreage controls. The picture for continued large demands for American soybeans and soybean oil looks good. Barring the most unexpected developments, production in relation to demand at reasonably competitive prices should not be such as to warrant consideration of controls or reductions in acreage during the next few years.

As I mentioned earlier, the price of soybeans is now being supported at $2.04. The last published "comparable" price for soybeans was $2.06. In other words, beans are being supported practically at the parity level. Corn, in contrast, is supported by law at 90 percent of parity. We realize, of course, that parity levels are not always the fairest levels, but the $2.04 support price seems to be most feasible for 1947 under all the prevailing circumstances.

What happens to soybeans, however, is going to be determined in part by the competition of other fats and oils. The only other U. S. oil crops now bulwarked by a support program are peanuts and flaxseed. The support of flaxseed is at the extremely high level of $6.00 a bushel, U. S. No. 1, Minneapolis basis, for the 1947 production. This is $2.40 higher than the support price announced last September. And the goal is still set at 5 million acres, nearly twice last year's acreage.

There are two reasons for this emphasis on flaxseed. One is the continuance of heavy requirements for linseed oil. The situation with respect to drying oils is more than serious; it is very nearly critical. The second reason is our natural desire to make ourselves independent of large imported supplies.

As for the future, our policy with respect to flaxseed is likely to be governed by the world situation.

So much for competitive crops on the domestic front.

Just in passing, I want to answer the

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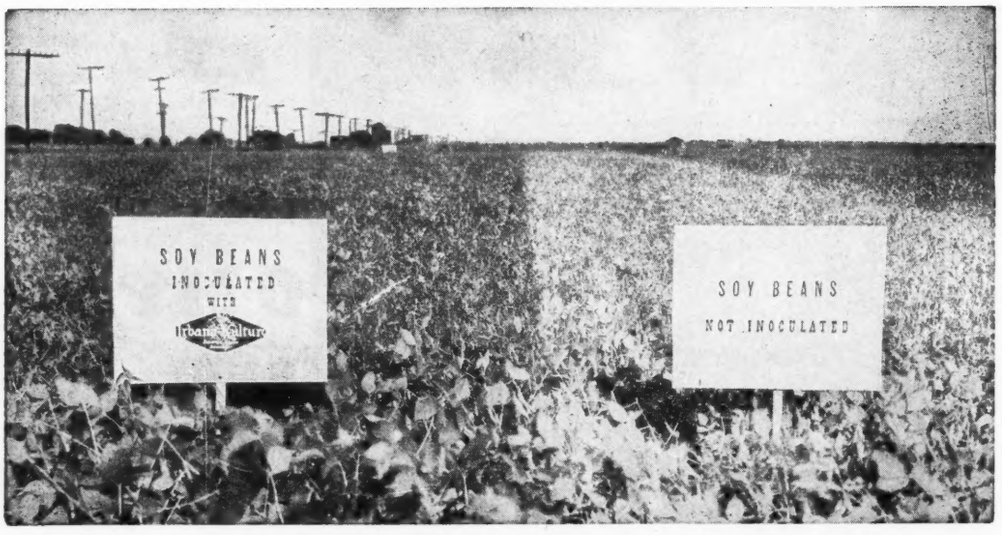

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question as to where soybeans are to be classified in the soil conservation picture. This is one of the points your committee was interested in. The answer is this: When harvested for beans, they are soil depleting and this classification will have to be continued until we learn more about rotations, fertilization and like factors.

TO FIND BALANCE

It is perfectly obvious that we cannot go on year after year growing tremendous acreages of soybeans for beans without undergoing soil damage. The same applies to flaxseed. On the other hand, critical oil needs cannot be ignored. In the long run, when the entire world agricultural picture has become less distorted than now, the probability would seem to be that American soybean production will find a level somewhere between that of prewar and that of the present. Meantime, we have to work out year by year the best possible balance between oil needs and soil conservation requirements.

Now I want to devote some time to an examination of the prospect for competitive oil imports.

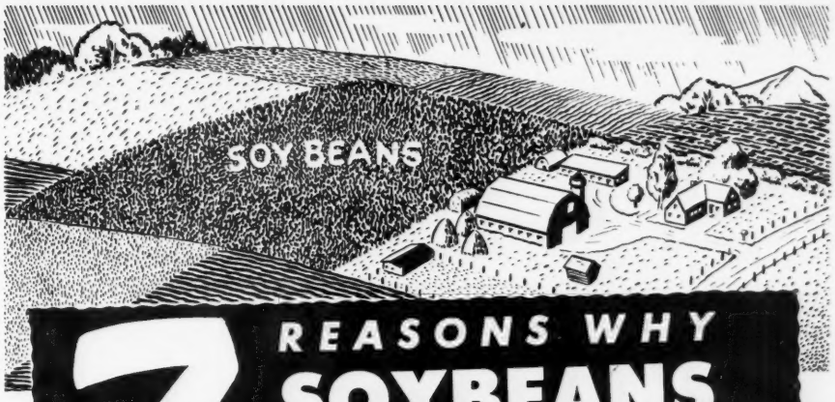
The outstanding fact on the world level is a shortage that will continue to be critical at least until the 1947 crops become available. Demand on the world level will take all the oil we can spare at or above the support price.

Last year total world fats and oils production stood some 20 percent below the prewar average. Not only is world production substantially less than in prewar, but the quantities of fats and oils moving in world commerce are even more seriously curtailed. In 1946 supplies available for export were estimated at less than 3 million tons, compared with import requirements of some 5 or 6 million tons.

It certainly seems that the American soybean industry has little to fear from competitive oil imports in the next few years.

In thinking about world possibilities we shall have to keep in mind, too, the probable influence of the Food and Agriculture Organization of the United Nations. At the recently concluded meeting in Washington of the Preparatory Commission on World Food Proposals, plans were proposed whereby world production and distribution of agricultural commodities would be brought more into line with actual needs. Formation of a World Food Council was urged, as well as an annual review of national agricultural and nutritional programs.

The Commission also recommended establishment of famine reserves to be held nationally, but used on internationally agreed terms; the establishment of price stabilization reserves or "buffer" stocks;



7 REASONS WHY SOYBEANS OFFER BETTER PROFIT OPPORTUNITY IN 1947

MORE NET PROFIT per acre from soybeans in 1947 is a prospect *you* can't afford to overlook in *your* cropping program. Here are the "reasons why" for increasing *your* soybean acreage.

1. FAVORABLE PRICE RATIO. Soybeans, in relation to other cash crops, enjoy and will probably continue to enjoy a favorable price ratio throughout 1947. Other crops come nearer meeting demand.

2. WORLD SHORTAGE of fats and oils. Some European countries report 50% less oil consumption than before the war. The United States alone could consume a billion pounds more of fats and oils if available.

3. PENT-UP INDUSTRIAL DEMAND. Industrial demand for soybean oil exceeds supply. Almost 95% of domestic soybean oil went into food channels during the war. As soon as available, large quantities of soybean oil are expected to go into paints and linoleum.

4. LESS SOIL DEPLETION. Soybeans rob the soil of less fertility than some other crops. Nitrogen fixing quality of soybeans is not to be overlooked in your normal crop rotation programs.

5. DEMAND FOR HIGH PROTEIN FEED looks bright. If current use of high protein feeds continues, as recommended by leading animal nutritionists, needs for feed alone would require as much or more soybean meal than was produced during war years.

6. EXPANDING INDUSTRIAL USES. Leading research organizations are improving methods of separating oil from seed, improving color and flavor of both oil and meal and developing new industrial uses for soybeans.

7. NEW VARIETIES GIVE GREATER YIELDS. Breeders are constantly experimenting with a wide range of varieties of soybeans to develop greater yield and wider adaptability to a variety of soils.

Remember the prospect for more net profit from soybeans in 1947 when planning your cropping program. Plant more soybeans!

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and sales of food which has been produced in quantities above commercial demand at special prices to supplement diets of needy groups.

All this has implications for the future. And even in the present, we are participating in the international program to allocate supplies of scarce commodities to importing countries. During recent weeks we announced total commercial allocation of 110,000 long tons of oil cakes or meals to such countries as Finland, Belgium, Denmark, Holland, and France, which are in serious need of protein feeds.

Thus, in cooperation with other nations, we are seeking to bring about an orderly movement of farm commodities in world trade, and to use the available supplies in such a manner as to meet at least minimum world requirements.

The present and the immediate future for soybeans seems promising. But now let us take a look into the more distant future. What is going to happen when the old fats and oils sources come back into the picture in full strength? Are soybeans going to get into the position that potatoes occupy today, and that corn and wheat and cotton and other crops occupied a decade ago? Certainly we cannot afford to ignore the fact that the wartime expansion of farm productivity contains in itself the seeds of potential price-depressing surpluses.

This, of course, is a problem that extends pretty well across the board: it applies not only to soybeans but to all major crops. The thing that bulks large in the minds of all of us is how our agricultural productivity can be used for the benefit of the people without slapping us right back into the mess of the 1920's and 1930's.

We are basing our hopes on a number of factors. One is full employment in the United States. If the people have plenty of buying power they will be able to take a good deal more agricultural commodities per capita than they did in prewar. A second factor is the increase in population. A third is the hoped-for development of brisk world trade with the help of the World Bank, the FAO, and other agencies.

And there is still another factor which has very recently come upon the scene. I am referring to the Research and Marketing Act of 1946. The sum and substance of this bill is to authorize a broadened research program taking in all aspects of production and marketing, so as to give agriculture parity with industry in the fields of scientific experimentation and research.

The authorization provided is extremely broad gauge. Thus studies can be made to render production more efficient, to find new and improved varieties of plants, to develop new uses for commodities, to investigate marketing practices, transportation and distribution of agricultural products in an effort to lower the cost and improve the efficiency with which products pass from the farm to the ultimate consumer.

Here is an indication of the latitude of the legislation. The Secretary of Agriculture is authorized to contract for services of either public or private organizations in carrying out research. In other words, a project can be carried out either by the Department alone, or by the Department in cooperation with the States or a trade association or an industrial concern.

The major advantage of this, as I see it, is that it enables us to throw a problem into the laps of research workers right on the firing line. We can bring research workers up against the actual problems faced by a processing or distributing company.

Under the Research and Marketing Act of 1946 we hope to be able to take worthwhile projects to the pilot plant stage. From there it will be comparatively easy for industry to carry on.

But I have always felt that the best justification of research is the record of its past accomplishments. I think the Northern Regional Research Laboratory deserves to take a bow for the excellent work it has done since it was set up in 1936.

Eleven years ago soybean oil could be used either for paint or for food, but it was not good for either. Today, because of technological improvements, it does pretty well for both.

In addition, such new products as Norelac, a moisture resistant lacquer, as well as a soybean fiber and a waterproof glue for use on plywood, have been produced. Work is going forward on improved soy flour and soy oil as well as on improved paint oil and adhesives.

So, you see, research has already produced excellent results.

Thus far, however, marketing research has lagged behind. We hope the Research and Marketing Act will remedy the situation.

I can say very frankly that the Department is determined to see that the Act measures up to the high expectations we all have within the limits of appropriations for the work. This legislation was enacted late in the last session of Congress and funds for this Act have not yet been appropriated. You know as well as I, that to get the most benefit out of it, we must all pull together. We need teamwork right up and down the line. We ask farmers and industrialists alike to maintain close contact with government and to give us the benefit of their advice. We want you to throw your weight behind worthy projects and to express yourselves freely on those that don't make sense to you.

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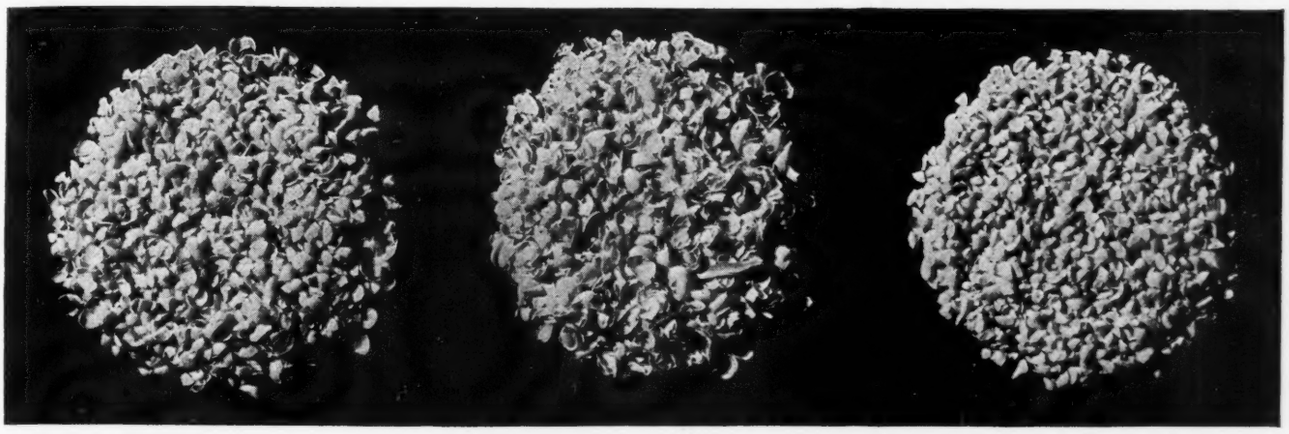

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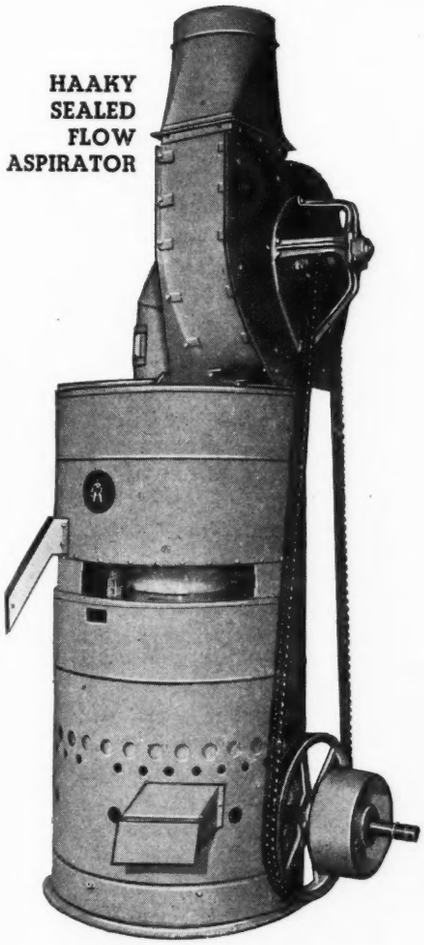

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Soya in RATIONS FOR SHEEP

By JAMES E. BRIGGS

SHEEP husbandry, a flourishing pioneer of agricultural enterprises, is still playing an important role in present-day American agriculture. Because of its inherent and particular advantages, sheep raising is the major enterprise in various grazing sections of the vast western range area and a supplementary enterprise where the farm flock system is used in diversified farming. Wool and market lambs provide a ready source of income.

On the last 5-year average, sheep have contributed over 320 million pounds of shorn wool annually, or more than 128 million dollars in total yearly farm cash income, in addition to over 800 million pounds of lamb and mutton yearly (so-called luxury meat) for the American family meat table. On January 1, 1946 sheep on farms in this country were estimated to total 44,241,000, compared to 47,945,000 in 1945.

American livestock have suffered for years from protein starvation. At the close of 1945 there was a deficit of about 2 million tons of digestible protein during the year, according to U. S. Department of Agriculture estimates for meeting the protein needs for livestock. The digestible protein, when converted to high protein meals, represented a total of 6 million tons. Even though the sheep industry uses only 1 to 1.4 percent of the total high protein concentrates fed to livestock, it too has suffered from the critical protein shortage during the war period through diminishing numbers, smaller and weaker lamb crops, lower wool clip, and decreasing market lamb quality. To properly feed the sheep in 1945, the Feed Industry Council estimated that 249,000 tons of high protein feeds and 865,000 tons of grains and mill feeds were required.

Feeding sheep, as with other classes of livestock, has rapidly become a science, whereas, but a few years back, it was only an art. The changes in old feeding methods and ideas have largely been the result of reseach in practical livestock nutrition at the various agricultural experiment stations. Then, too, the changing feed supplies have made it more economical to change feed formulas from time to time, even though the feeder has been reluctant to change from his well-established feed formula.

With the present limited supply of some protein oil meals and the comparative liberal supply of soybean oil meal, many sheep feeders are using soybean oil meal as the principal protein supplement for feeding sheep with great success and profit.

PASTURE AND ROUGHAGE

Although grain and protein supplement feeding are essential for successful sheep production, pasture and hay are the basis of a practical and economical ration for sheep. Sheep are very fond of roughage and have a high ability to use it.

Sheep have a high nutritive requirement for protein, minerals, and total digestible nutrients (TDN) because they produce 8 percent or more of their body weight in grease wool (chiefly protein) and from 8 to 16 percent of their body weight in the form of lambs during the 147-day gestation period. In addition, they produce milk of high protein and mineral content during the lactation period. Fortunately, the ruminant, such as the sheep or cow, is less discriminating in the quality of protein than are the simple stomached non-ruminants, such as the pig or chicken because of the great bacterial flora in the rumen (paunch) which synthesize essential amino acids even from non-protein nitrogenous substances. For sheep feeding, animal proteins commonly produce no better results than vegetable proteins, such as soybean oil meal or linseed meal. Moreover, good quality legume hay makes good any deficiencies in the quality of protein in the cereal grains and their by-products.

During most of the year, good pasture can form the main part of a sound, well-planned feeding program for sheep. Early spring pastures that supply a highly nutritious grass of high protein content will furnish practically all of the required nutrients for satisfactory flock performance unless the pasture is overstocked. As the pasture season advances and the grass becomes more fibrous, less palatable, and of lower nutritive value, it is necessary to use supplementary feeding unless temporary forage pastures of good quality can be provided. Pastures revived by early fall rains and wheat pastures also provide good nourishment up until the snow flies. Then in the barn feeding period sufficient well-cured legume hay will not only provide most of the necessary protein but also a sufficient amount of calcium and vitamins, particularly vitamins A and D.

Basically, the sheep feeding program can best be divided into two classes, i. e., feeding the breeding flock and feeding lambs for market.

FEEDING THE BREEDING FLOCK

As previously noted, the ewe flock can be maintained largely on pasture or dry roughage through the summer if it is of highest quality. Otherwise, it must be supplemented with concentrates.

In the winter the pregnant ewe must be fed to maintain herself, produce wool, and develop a fetus or fetuses. Liberal feeding

of a high quality legume hay will generally meet her requirements for protein, energy, minerals, and vitamins up to about a month before lambing. However, when a high quality non-legume hay is fed during this period, the ewe's ration should be supplemented with ¼ to ½ pound of soybean oil meal and 6 grams of ground limestone per ewe daily to correct the protein and calcium deficiencies co-existing in the ration.

As shown by Illinois trials, corn silage proved to be very satisfactory as the sole roughage in the pregnant ewe's ration when supplemented with 0.20 pound soybean oil meal, 0.60 ounce of either ground limestone or steamed bone meal, and 0.60 ounce of salt. Another practical way of correcting the protein and calcium deficiencies inherent in the corn silage ration is to feed about ¼ pound per head daily of a protein supplement composed of 80 pounds soybean oil meal, 10 pounds of finely ground limestone, and 10 pounds of salt.

In case it is necessary to feed early-cut timothy as the only roughage, a liberal amount of soybean oil meal and high calcium mineral should be included in the ewe's ration. A combination of corn silage and legume hay is also a very desirable ration.

During the last month of pregnancy, the ewe should be fed ½ to ¾ pound of grain daily in addition to the above roughage rations because of the additional nutrition demands of the rapidly growing unborn lamb.

After lambing, the nutrient requirements of ewes for protein, mineral, and TDN are stepped up sharply because of the great nutritional demands of milk production. The same recommendations should be followed that were suggested for feeding the pregnant ewe, except that the grain allowance should be increased to 1 to 1½ pounds per ewe daily.

Experiments have definitely shown that insufficient feed or an improperly balanced ration will produce weak lambs, a scanty milk flow, a thin nursing ewe, and subsequently lower profits.

Wool produced from sheep is chiefly protein (rich in cystine) and the nutrition of both ewes and lambs exerts a direct influence on the quality and quantity produced. California and Nebraska trials have demonstrated that a decided lack of feed or insufficient protein decreases the wool yield, produces smaller and weaker fibers, and causes weak spots known as "breaks" in the wool fibers.

On the western ranges sheep are maintained almost entirely on native forage which is fairly nutritious and furnishes grazing throughout part of the winter. Because of the decreasing protein and mineral content of the forage as the pasture season advances, and since it is largely carbonaceous in nature, the forage should be supplemented with soybean oil meal or pellets and an efficient calcium and phosphorus supplement in order to meet the needs for wintering ewes on the range.

FEEDING MARKET LAMBS

In order to fatten lambs rapidly so that they will reach the desired degree of fatness before they become too large, it is necessary to feed them a liberal amount of grain or other concentrates in addition to plenty of good roughages. Fattening lambs make more rapid gains in proportion to their live weight than do beef cattle, and therefore they require somewhat more TDN daily per 1,000 pounds live weight.

As with ewes, probably the most economical method of feeding lambs is a combination of legume hay and grain. Feeding tests have shown that when a liberal amount of alfalfa or clover hay is fed with corn or other grain, there is usually sufficient protein to produce very satisfactory gains, without the addition of any protein supplement.

Adding from 0.10 to 0.15 pound of soybean oil meal per head daily to a full fed ration of legume hay and grain for fattening lambs consistently increases the daily gain about 0.05 pound, on the average. Also where lambs are self-fed corn and legume hay separately, the feeding of soy-

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bean oil meal may be advantageous, since the lambs usually eat more corn and less hay than lambs that are hand-fed. Then, too, it may be quite beneficial during the latter part of the feeding period when lambs full fed on corn tend to eat less hay.

On the average, it pays to include 0.15 to 0.20 pound of protein supplement per head daily to a full fed ration of corn, alfalfa, and corn silage because lambs will gain slightly more, produce a higher finish, and keep on feed better, according to a summary of experiments in *Morrison's Feeds and Feeding.* Numerous trials have also shown that it is generally profitable to add a protein supplement, such as soybean oil meal, and a calcium supplement to a full-fed ration of corn and timothy or prairie hay.

Three Purdue trials indicate that soybean oil meal or soybeans fed in the proportion of 1 pound for every 7 pounds of corn in a lamb fattening ration made more rapid gains, required less feed per 100 pounds gain, and produced slightly superior finish, compared with cottonseed meal. In trials at the Illinois station soybean oil meal proved more palatable to fattening lambs than ground soybeans, and produced slightly more rapid gains with less feed per 100 pounds gain than linseed meal when fed as a supplement to shelled corn and soybean straw. Results of a few trials have indicated that blends of some of the more popular protein supplements are not markedly superior to the supplements fed singly in a practical lamb fattening ration.

Metabolism studies on growing wether lambs at the Cornell station have shown the following biological values of vegetable proteins: Soybean oil meal, 72.8; linseed meal, 67.7; and corn gluten meal, 65.7. These data show the superiority of the protein of soybean oil meal.

SOYBEAN OIL MEAL AS THE YARDSTICK

Finally, there is an old adage "nothing succeeds like success" which is applicable. The phenomenally rapid acceptance of soybean oil meal by sheep feeders during the last few years is based on its nutritive features:

(1) Soybean oil meal is high in palatability and produces rapid gains.

(2) Its protein is more highly digestible than that of other commonly fed protein supplements.

(3) Its protein is also of higher quality in that it makes good most of the amino acid deficiencies in cereal grain rations for livestock.

(4) Its total digestible content is higher than most other protein supplements except soybeans.

(5) It is not unduly laxative when fed in amounts necessary to balance farm grown rations.

(6) It produces a better finish than cottonseed meal or soybeans, and

(7) Generally the price per unit of digestible protein is lower than other feeds of this class.

In short, soybean oil meal has now supplanted linseed meal as the yardstick for comparing vegetable proteins in livestock nutrition.

—s b d—

MARGARINE BILLS

Legislation to permit the unrestricted sale of margarine, by repealing four laws which regulate both the trade in and the use of the product, has been introduced in the Pennsylvania State Senate by Sen. Louis H. Farrell, Philadelphia, Republican majority member.

The bill has obtained backing from both independent and chain grocery owners in the state, and the Pennsylvania Food Trade Committee of Margarine Distribution.

The battle over whether margarine, manufactured in Ohio, will be colored or uncolored started March 11 in the Ohio legislature, when hearings began on a bill which would allow manufacturers to sell colored margarine.

Under present Ohio laws margarine manufactured in the state cannot be colored, even though much of the product is sold outside the state.

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IOWA PROCESSOR GROUP MEETS

About 30 representatives of Iowa soybean processors were in attendance when H. D. Hughes, head of the Farm Crops Department of Iowa State College, opened the morning sessions of the annual Soybean Processors Conference at Ames on March 20.

The annual business meeting of the Iowa processors organization had been held the previous night at the Sheldon-Munn Hotel in Ames, when Paul Klinefelter of the Central Iowa Soybean Mill at Gladbrook had been elected chairman for the coming year; and when funds had been authorized for joint participation in the sponsorship of the 1947 Iowa Soybean Yield Contest.

Dr. I. J. Johnson, acting director of the Iowa Agricultural Experiment Station, welcomed the visitors to the college campus, and outlined briefly the interest of the college in the processing program, and in the soybean crop.

GOOD PRICE TO CONTINUE

Reviewing the price trends in soybeans, soybean oil and soybean oil meal, O. W. Brownlee of the department of agricultural economics, predicted soybean prices on the 1947 crop will be considerably above the $2.04 per bushel support figure recently announced. Citing the current world shortage of fats and oils, and predicting that the shortage would continue through 1950 or perhaps 1951, Brownlee suggested that soybean prices will probably continue in favorable relationship through that same period of time. From the standpoint of economics he further suggested that soybean oil meal should continue to sell at from two and one-half to three times the price of corn, on a pound for pound basis.

Recent work on dates and rates of planting of soybeans, and the effect on yields, maturity dates, and chemical composition was reviewed by Dr. M. G. Weiss of the agronomy department. Weiss, who was in charge of the Iowa soybean work for the U. S. Regional Soybean Laboratory previous to his entrance into military service, reported that the results of that work conducted over a 3-year period, will be published in a bulletin within the near future.

Varietal recommendations for the different sections of the state were reviewed by C. R. Weber, collaborator for the Regional Laboratory. Pointing out that the average yield of soybeans in Iowa has increased from about 10 bushels per acre in 1922 to 23 bushels per acre for 1946, Weber attributed a good share of the increase to better varieties. The work now being done on new and improved varieties was reviewed, with a preview of the new earlier lines which look promising.

The results of the 1946 Iowa Soybean Yield Contest, in which the winning yield was 52.26 bushels per acre, were reviewed by Geo. M. Strayer, chairman of the committee in charge of that event, together with a report on plans for the 1947 event, of which the Iowa Soybean Processors are joint sponsors.

Damon Catron, of the animal husbandry staff of the College, reviewed the experimental work on the feeding of soybean oil meal done at all Midwestern stations in recent years, and pointed out that for swine the soybean oil meal can make up from 40 to 100 percent of the protein supplement, depending on the stage of growth and the other feeds available. For cattle soybean oil meal can make up from 50 to 100 percent of the total protein with satisfactory results. Meal made from frosted soybeans, and from bin-burned soybeans, shows no difference in feeding value from that made from normal beans, according to Catron.

Soybean oil meal, being low in mineral content, must be supplemented properly with those minerals to secure maximum gains, he continued. Large amounts of soybean oil meal have gone into poultry feeds with very good results, he reported, and especially good results have been se-

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cured with chick starters high in soybean protein.

The results of 3 years' studies on hail damage to soybeans were reported by J. C. Eldredge of the farm crops staff. This work was reviewed in the *Soybean Digest*, June 1946 issue.

The solvent extraction of soybean oil with trichloroethylene was discussed at length by Dr. L. K. Arnold of the chemical engineering department of the College. The advantages of this type of extraction were reviewed by him, together with the details of the process which has been developed on an experimental basis. A complete plant for this method of extraction is soon to reach the markets, according to Arnold, embodying the advantages of the non-explosive and non-inflammable solvent operations. The work being done on other solvents was also reviewed by Arnold.

Methods used in hybridizing, increasing, selection, and propagation of new varieties of soybeans were reviewed by Dr. M. G. Weiss on the afternoon session. The system of testing of new lines evolved at the Iowa Station was explained in detail, and the period of time elapsing between the time a cross is made and the progeny is ready for introduction was discussed.

The place of soybeans in the Iowa farm rotation was discussed by Dr. W. H. Pierre, head of the department of agronomy at the College. Pointing out that soybeans should not be expected nor allowed to replace sod crops in the rotation, Dr. Pierre reviewed the comparative yields of crops following soybeans and following corn. A series of 39 tests showed an average increase in corn yields of 8.8 bushels per acre when the corn crop followed soybeans, as compared with corn following corn. Oats following soybeans yielded 16.4 bushels per acre more than when following corn in the same series of tests.

Contrary to common opinion, soybeans respond favorably to applications of lime, according to Pierre, although they do not show as large increases from commercial fertilizer applications as other crops in the rotation, tending to respond more generally to a rise in the general fertility level.

"It is within the realm of possibilities," according to Dr. Pierre, "with improved varieties, proper rotations and soil practices, and proper cultural practices on the soybean crop, that 50 percent of the Iowa soybean crop should yield 50 bushels per acre or more."

Soybean straw, if properly spread behind the combine, is a very important protection against erosion, according to Dr. George Browning, of the soils department. On some soil types, with the soybean straw spread back on the ground, there is considerably less erosion loss than with a corn crop.

"We have been far too critical of soybeans in the rotation as an erosion factor," Browning pointed out, "when the straw is properly spread."

"Too many of our combines are operated without straw spreaders, with spreaders not in proper working order, or with spreaders disconnected, thus greatly increasing erosion losses," Browning continued.

Figures gathered in southwest Iowa indicated that corn planted in rows running up and down the hills showed erosion losses of 51.5 tons per acre on a 7 percent slope, as compared with 18.8 tons from soybeans where the straw was spread back. Listed corn and soybeans showed about the same relationships, with soybeans holding a distinct advantage when the straw was spread back on the field.

USDA Research Committees Named

The U. S. Department of Agriculture has announced the appointment of the soybean and flaxseed committee which will serve in connection with the Research and Marketing Act of 1946.

Ten of the 20 commodity advisory committees have been completed.

The commodity advisory committees will advise the Department on various problems affecting the respective commodities and the development of research and marketing programs for solving these problems. Meetings for the cotton and potato committees were held in March. The others will be called to their first sessions soon.

Members appointed to the soybean and flaxseed advisory committee are as follows:

Otto G. Brandau, soybean grower, Rudd, Iowa; D. J. Bunnell, Central Soya Co., Inc., 141 West Jackson Blvd., Chicago, Ill.; R. W. Capps, vice president, Archer-Daniels-Midland Co., Roanoke Building, Minneapolis 2, Minn.; H. E. Carpenter, president, Lexington Soy Products Co., Lexington, Ohio; J. B. Edmondson, soybean grower, Clayton, Ind.; Eugene D. Funk, Jr., president, Funk Brothers Seed Co., Bloomington, Ill.; Howard Kellogg, Jr., president, Spencer Kellogg and Sons, Inc., Buffalo, N. Y.; Floyd Melhouse, flaxseed grower, Olivia, Minn.; Karl Nolin, grower-processor, Ralston, Iowa; Edwin Traynor, flaxseed grower, Starkweather, N. Dak.; Harry Truax, manager, soybean department, Indiana Farm Bureau Cooperative Association, Inc., Indianapolis, Ind.

Feed advisory committee, which will serve in connection with the act, has also been announced as follows: L. E. Bopst, secretary-treasurer, Association of American Feed Control Officials, College Park, Md.; R. C. Buckles, grower, Stratford, Texas; Elwood L. Chase, Cooperative G. L. F. Mills, Inc., Chamber of Commerce Bldg., Buffalo 5, N. Y.; E. G. Cherbonnier, feed industry consultant, 3615 Olive St., St. Louis 8, Mo.; H. Clarence Eales, asst. gen. manager, Poultry Producers of Central California, 840 Battery St., San Francisco 11, Calif.; Fred J. Ludwig, grower, and director, Farmers Trading Co., Laurens, Iowa; Floyd E. Mundell, grower, Cozad, Nebr.; Harold L. Peet, dairyman, Pike, N. Y.; Martin L. Salm, grower, Chilton, Wis.; Charles Schmitt, grower, Beason, Ill.; R. C. Woodworth, asst. to the president, Cargill, Inc., Chamber of Commerce Bldg., Minneapolis 15, Minn.

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MUSIC AND SOYBEAN MIXUP WHEN —

JOHN EVANS MET JOHN EVANS

• *When John W. Evans, ASA director from Montevideo, Minn., was in Minneapolis recently, he had trouble in keeping his identity separate from one John S. Evans, manager of the Don Cossack chorus, also in Minneapolis. The following account appeared in* THE MINNEAPOLIS TRIBUNE *and is reprinted from that newspaper.*

By MIRIAM ALBURN
Minneapolis Tribune Staff Writer

John Evans and John Evans wished Friday that their parents had thought to name them Algernon and Xerxes, or practically anything but John.

John Evans, Montevideo, Minn., had come to Minneapolis to speak on the hybrid seed corn act at a hearing of the house agricultural committee in St. Paul.

He registered at Radisson hotel and was given room 935.

John Evans, the manager of Gen. Platoff's Don Cossack chorus, which will give a concert Sunday at Northrop auditorium, came to Minneapolis from New York to do a little advance business for the singers.

He registered at Radisson hotel and was given room 952.

From that point on corn and chorus met in a confusion that became fantastic.

John Evans—the corn man—who is also a soybean man, got a call telling him to be at a radio station for an 11:30 broadcast. Something about a short message to the people of Minnesota.

So he rushed through his doings at the capitol as chairman of the legislative committee of the Minnesota Crop Improvement Association and director of the American Soybean Association.

He dashed back from St. Paul—only to find that the radio interviewer was all set to ask him about Russian music.

John Evans—the chorus man—couldn't seem to get in touch with his Minneapolis friends. He left messages and they never called back. As a visiting New Yorker he felt a little neglected.

Meanwhile Mrs. John Evans (the corn man's wife) was the focal point of the confusion, as she kept picking up the phone in Room 935 and hearing chorus talk.

When John and John got together they found they had just one thing in common besides the name—Welsh ancestry.

John W., the farmer, was born in Minnesota and said, "I've never even heard the Don Cossack chorus."

John S., the concert manager, introduced himself as a "Georgia cracker" and said, "*I like soybeans with my chow mein and corn on the cob.*"

Last night the corn man was on his way back to the farm outside Montevideo and the chorus man was trying to find out where his singers can get some Russian food in Minneapolis.

—s b d—

When soybeans are grown for hay, August cuttings of early varieties give more dry-matter production than do later varieties harvested at the same time, reports the New York State College of Agriculture.

John S. Evans (left) and John W. Evans meet after a day of confusion in Minneapolis.
—Minneapolis Tribune Photo

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Publications

Effect of Straw

EFFECT OF STRAW AND CORNSTALKS ON THE YIELD OF SOYBEANS. By A. J. Englehorn, K. Lawton, H. R. Meldrum and A. G. Norman, Iowa Agricultural Experiment Station, in *Journal American Society of Agronomy*, February 1947.

Greenhouse experiments at Beltsville, reported earlier (See *Soybean Digest*, August 1946, page 25) indicated that soybean growth and nitrogen uptake are decreased by incorporating large amounts of straw in the soil.

Three field experiments on nitrogen nutrition of soybeans carried on by the authors included straw or cornstalk residue treatments. Their results do not agree with those of the greenhouse experiments.

At none of three field experiments reported did any decrease occur in yield of threshed soybeans as a result of plowing under straw or cornstalk residues.

"The results of these field experiments make it probable that under Iowa conditions soybeans may follow a crop leaving a substantial amount of residues without reduction in yield; and without necessity of supplying additional nitrogen to meet the requirements of the decomposing residues," state the authors.

Poultry Feeding

SUPPLEMENTARY VALUE OF METHIONINE, CYSTINE AND CHOLINE IN A PRACTICAL SOYBEAN OIL MEAL STARTER RATION. By D. R. Clandinin, W. W. Cravens, J. G. Halpin and E. B. Hart, University of Wisconsin. In *Poultry Science*.

Experiments involving supplementation of practical soybean oil meal starter rations with methionine, cystine, choline and certain B-vitamins are reported. Results indicate:

1. Soybean oil meals incorporated in a practical starter ration may or may not be improved by choline supplementation.

2. Soybean oil meals are improved by methionine supplementation. All meals tested were benefited by its addition.

3. Choline and methionine cannot be considered as interchangeable supplements to such starter rations. Three out of four meals tested were not improved by choline supplementation, but all benefited by methionine supplementation.

4. A combination of vitamins including calcium pantothenate, pyridoxine hydrochloride, nicotinic acid and choline as a supplement to soybean oil meal rations was not found superior to choline.

5. It is not possible to indicate what pure supplements should be added to a chick starter composed of soybean oil meal, alfalfa meal, grain, grain byproducts and mineral feeds in order to insure optimum growth.

THE NUTRITIVE VALUE OF COTTONSEED MEAL, SOYBEAN MEAL, AND PEANUT MEAL WHEN USED SEPARATELY AND TOGETHER TO SUPPLEMENT THE PROTEIN OF PRAIRIE HAY IN EXPERIMENTS WITH STEERS. By H. M. Briggs, Willis D. Gallup and A. E. Darlow, Department of Animal Husbandry, Oklahoma Agricultural Experiment Station, in *Journal of Agricultural Research*.

Cottonseed meal, peanut meal and soybean oil meal, and a mixture of equal parts of the three meals were compared in nutritive value when fed to steers as supplements to a basal ration of prairie hay of low-protein content.

The supplements were fed with the hay in the ratio of 1 part of supplement to 10 parts of hay.

The apparent digestibility of protein was highest in the peanut meal ration and lowest in the cottonseed meal ration, with soybean oil meal between the two.

It appears that in spite of the greater digestibility of protein in the peanut meal ration, the protein was utilized and stored about the same for each of the three supplemented rations. There was no evidence that the protein furnished by a combination of the meals was superior in quality for yearling steers to that of any one of them.

Plowing under cornstalks or straw is a safeguard against erosion and does not adversely affect the yield of the soybean crop following, say Iowa State College authorities.

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COOKED SOYBEANS FOR CHICKS. Experiments conducted at the Nebraska Experiment Station showed that cooking soybeans for 30 minutes at 250° F. very significantly improves the growth promoting value.

Cooking at the same temperature for 60 minutes did not result in further improvement. In fact, there was a decline in growth promoting value for chicks with this degree of heat treatment.

The depression of growth with raw soybean rations was not due to the fat content, since experimental work with a ration containing the same amount of fat added to a soybean oil meal ration gave excellent results.

Experiments to determine the most desirable degree of heat treatment were carried out. Thirty minutes of heat treatment at 250° F. of solvent process soybean meal apparently produces a product of highest growth promoting value. There is a suggestion from these experiments that heating for 90 to 120 minutes reduces its nutritive value for chicks.

Two hypotheses have been advanced to explain the changes which occur in soybeans as a result of heat treatment. First, the destruction of certain toxic materials or enzymes. Second, denaturization of soybean proteins with an increase in the ratio of essential sulphur containing amino acids, which in a raw condition are found in an unavailable state.

It was found that two outstanding changes occur when soybean proteins are autoclaved. First, there is a significant reduction in the solubility of protein in salt solution, and an increase in the number of active sulfhydryl groups. Second, there is a factor present in the raw residue, but lacking in the cooked residue, that destroys sulfhydryl groups.

THE CHOLINE CONTENT OF PURE VARIETIES OF WHEAT, OATS, BARLEY, FLAX, SOYBEANS AND MILLED FRACTIONS OF WHEAT. By D. Glick, *Cereal Chemistry*.

Pure varieties of wheat, oats, barley, flax and soybeans grown in known localities were tested for choline content. The wheats averaged from .79 to .91 mg./gm. dry weight basis.

Other average values were oats 1.14; barley 1.10; flax 1.07; and soybeans 2.37.

Hay Crops

SUPPLEMENTARY AND EMERGENCY HAY CROPS FOR MINNESOTA. By A. C. Arny, R. O. Bridgford and Ralph Crim. Bulletin 390. 24 pages.

The dry years of the early 30's emphasized the importance of determining the comparative yielding ability of short-season crops. Trials were conducted on 56 farms of the southern two-thirds of Minnesota and at University Farm and the station at Morris from 1934 through 1940.

Yields of emergency or short season crops were compared over three dry seasons and four favorable ones.

As an average for all tests at all locations the sorghum, corn, Sudan and Sudan-soybean mixture in 6-inch rows gave the highest yields of forage, both for dry seasons and seasons with average or better than average rainfall. In seasons of favorable rainfall Sudan or the Sudan-soybean mixture in 6-inch rows is preferable to corn or sorghum in 6-inch rows.

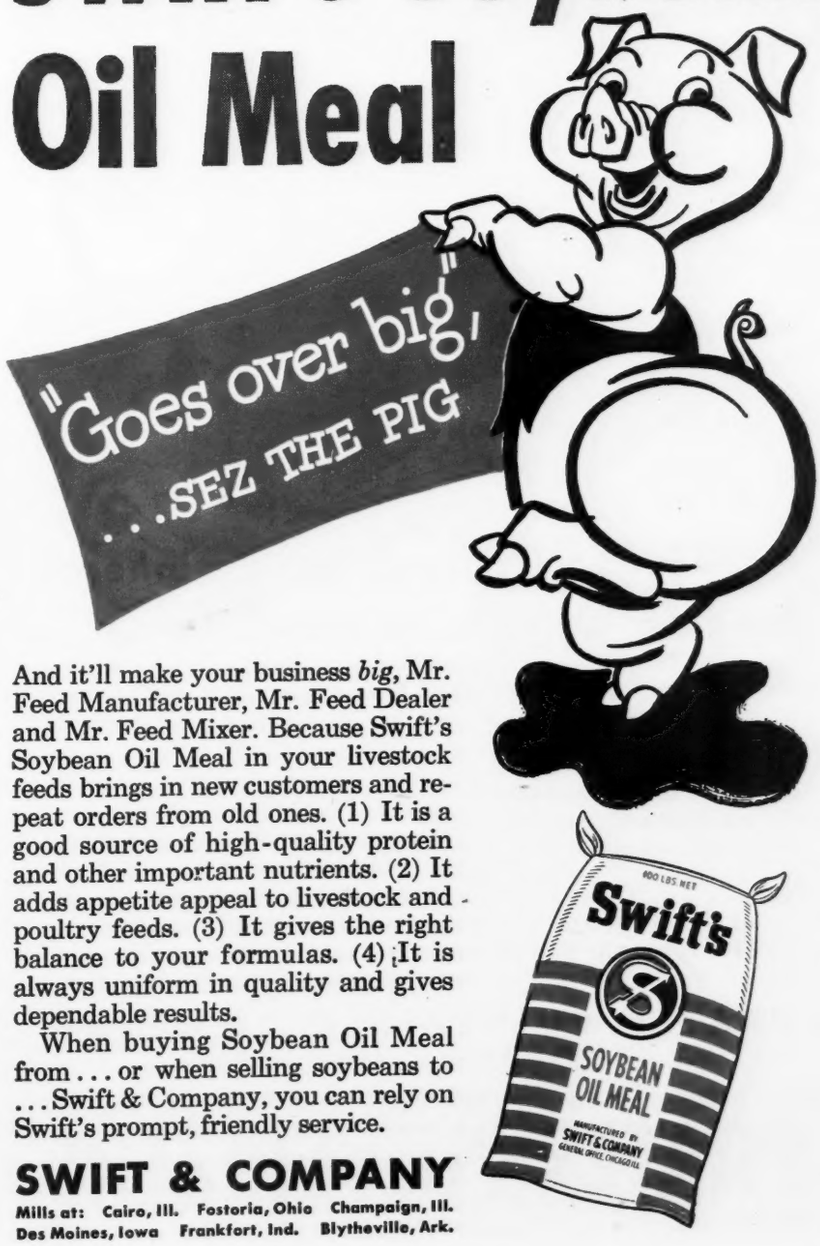
Reversion

FLAVOR REVERSION IN SOYBEAN OIL. By Calvin Golumbic, C. J. Martin, and B. F. Daubert., in *Manufacturing Confectioner*, March, 1947.

It is evident that the oxidation rate of soybean oil may be varied considerably without influencing the degree of reversion perceptibly. Even when the rate of oxidation is greatly reduced, there is no diminution in the tendency to revert.

On the contrary, with low oxygen concentrations, a type of reversion is produced that is more persistent in taste than that resulting in air or oxygen.

Swift's Soybean Oil Meal



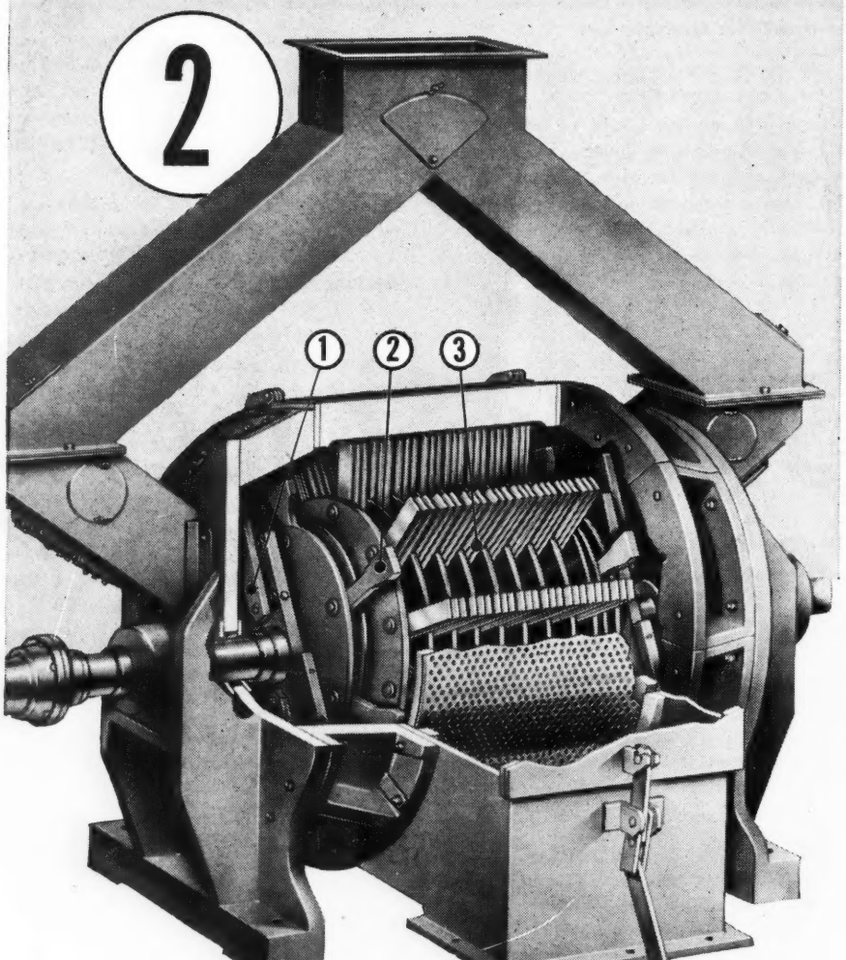
And it'll make your business *big*, Mr. Feed Manufacturer, Mr. Feed Dealer and Mr. Feed Mixer. Because Swift's Soybean Oil Meal in your livestock feeds brings in new customers and repeat orders from old ones. (1) It is a good source of high-quality protein and other important nutrients. (2) It adds appetite appeal to livestock and poultry feeds. (3) It gives the right balance to your formulas. (4) It is always uniform in quality and gives dependable results.

When buying Soybean Oil Meal from . . . or when selling soybeans to . . . Swift & Company, you can rely on Swift's prompt, friendly service.

SWIFT & COMPANY

Mills at: Cairo, Ill. Fostoria, Ohio Champaign, Ill. Des Moines, Iowa Frankfort, Ind. Blytheville, Ark.

TRIPLE REDUCTION



2 Secondary Crushing Peripheral Feeding as Aids to Final Sizing

Material reduced to proper size by primary reduction (1) feeds automatically to the second phase. There free swinging crushers of selected types, still further reduce the material and feed it evenly around the entire periphery of the rotor. This intermediate phase (2) combining reduction and peripheral feeding greatly increases both the speed and efficiency of final sizing (3), leading to controlled quality of the grind and controlled degree of fineness that distinguish the Prater Dual Screen Pulverizer.

This quality, and fineness, that you want, will be unfailingly maintained to a degree you have never known before. Write for full information.

PRATER PULVERIZER COMPANY
1515 South 55th Court • Chicago 50, Illinois

PRATER PULVERIZERS

YIELD CONTESTS

(Continued from page 15)

But the following statements are fairly safe:

Soybeans do respond to high soil fertility if not to direct fertilization.

Inoculation is a beneficial practice.

The evidence points to a yield advantage for narrow row widths.

CONTEST WINNERS

The *Soybean Digest* asked state and district winners in Iowa and Illinois to tell the methods they used to produce their winning yields last year. We believed the information may be of use to other soybean growers.

Twelve responded. They adhere closely to experiment station findings.

Ten of the twelve included clover or sod in their rotations. Nine applied either manure or commercial fertilizer or both during the last 2 years.

All but one of the winners in these two states grew Lincolns. That one grew Early-anas. All planted in rows. All but one spring-plowed.

An interesting difference between the Illinois and Iowa rotations is that a majority of the Illinois winners who answered our letter include soybeans twice in a 5-year rotation. None of the Iowa winners include soybeans more than once.

An interesting point is that only four of the twelve winners used the standard corn-row plantings of 36 to 40-inch rows. The majority of Illinoisans used 22-inch rows or narrower. Iowa winners inclined to somewhat wider rows than this, though most did not use full corn-row width.

Iowa winners also planted more seed per acre than the Illinois contest winners. Iowans averaged 1.7 bushels as compared to 1.2 bushels by the Illinoisans. One grower in each state used a planting rate as low as ¾ bushel.

Roger J. Shaff, Comanche, Iowa, district winner says: "By far the most important thing determining yield is weed control.

"I have had as good results from planting ¾ bushel as 1 bushel per acre.

"It is very important to have the sweep flat when cultivating so the ground is level when it comes time to combine.

"I have never tried growing soybeans without inoculating the seed. Also the land is limed."

J. H. Greiner, Keota, Iowa second place winner, always plows under his corn stalks, also all his bean straw. He says by disking the cornstalks or bean straw first, the ground can then be plowed and left in first class condition.

Merle Zepp, Scranton, Iowa, district winner writes: "This was a 10-acre field in a very high state of fertility. The cornstalks on the ground were double disked before plowing. The ground was plowed early in the spring, then allowed to lay until just before seeding time. It was then double cut

with the disk and then harrowed just before the planter. The planter was equipped with a fertilizer attachment but no fertilizer was used on the beans. The shores of the fertilizer attachment make a wider opening and the wheels consequently run in quite a trench.

"As soon as the beans were about 3 to 4 inches high the weeds started to germinate. This is the time to clean the beans. Set the shields on the cultivator so that they drop in the trench made by the planter and drive slow and throw enough dirt to the shields so that when they move forward the loose dirt falls in and completely fills the trench.

"The second cultivation was when the beans were about 12 inches high, and the third was just before the first bloom began to appear.

"I never fail to inoculate at planting time."

Homer D. Wilson, Keota, Ill., says he plans to plant less seed per acre in 1947. He believes fewer plants in the same length of row can be an advantage.

Mr. Wilson also says: "We plan to sow about the last week in May or the first week in June in this area in order to get the beans up ahead of the June freshets.

"A bean cultivator does nicer work than a corn cultivator as it does not ridge so much."

—s b d—

MANAGERS ASSOCIATION FOR SOYBEAN INDUSTRY

An organization meeting for an association of plant managers, personnel directors and labor relations directors of the feed mill and soybean processing industries will be held at the Palmer House, Chicago, Friday, April 25, Paul E. Hensel, personnel director of Central Soya Co., Inc., Fort Wayne, Ind., announces.

Purpose of the new organization is to provide mutual aid and information on such problems as management, labor and wages, which confront the industry.

Proposed name of the organization is Co-operators Feed Mill and Soybean Processors Association. W. J. Hoofe, director of public and industrial relations, Archer-Daniels-Midland Co., Minneapolis, will be principal speaker at the meeting.

The meeting is open to all who care to attend, according to Mr. Hensel. Advance reservations may be made by writing: Paul E. Hensel, personnel director, Central Soya Co., Inc., 300 Fort Wayne Bank Bldg., Fort Wayne, Ind.

—s b d—

BUYS IOWA MILL

Dannen Mills, St. Joseph, Mo., announce purchase of the Replogle flour mill in Red Oak, Iowa, as another in a series of expansions by Dannen.

The mill will be converted to one of the most modern feed manufacturing plants in that part of the country, and will manufacture all of the many kinds of feed not being made at the St. Joseph, Mo., home plant, the Dannens say. The Red Oak mill will serve western Iowa and eastern Nebraska.

—s b d—

BOOK ON PAINT OILS

Oils for the Protective Coatings Industry is a booklet recently issued by Spencer Kellogg & Sons, Inc. It describes the firm's line of linseed, castor and soybean oils, for the protective coatings industry.

Included are "Kellsoy", a chemically treated soybean varnish oil, and "Soya Solinox", a hydroloxilated soybean oil especially adapted to fabric coatings and artificial leather; as well as five special soybean oils for the protective coatings industry.

The booklet is highly attractive and arranged for instant reference to any oil. Included are illustrations of Kellogg's administration building and a number of laboratories and plants.

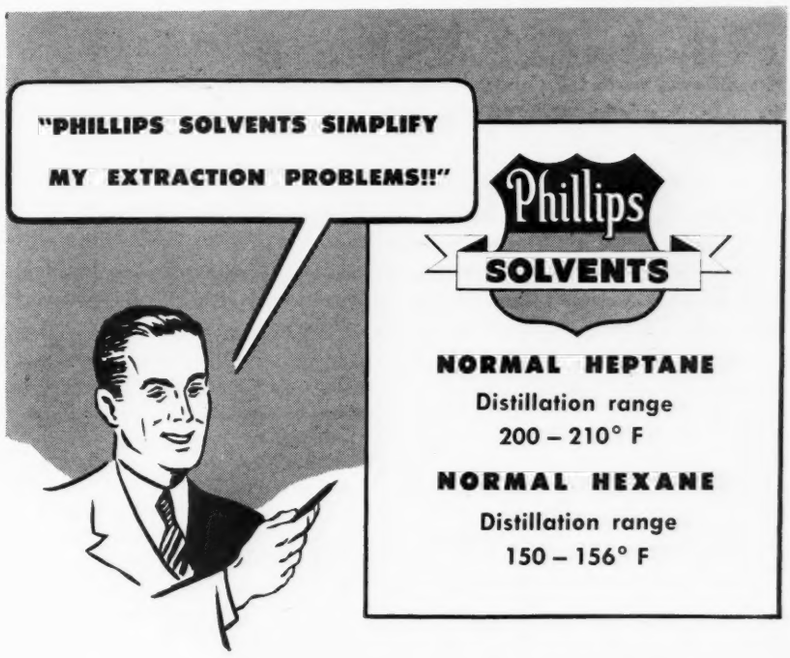
OHIO MEETING

(Continued from page 15)

and the University. This indicates that a big increase in total crop would be possible just by sticking to the good varieties. Some new varieties will be released by the soybean plant breeders in 1948 and 1949. The soybean disease situation was covered by C. C. Allison, Ohio State plant pathologist.

Experiments at the Ohio Station which show that pigs on pasture, with minerals in the ration, do as well with soybean oil meal as the sole protein concentrate as when fed a mixture of concentrates, were discussed by W. L. Robinson, in charge of swine investigation at the Ohio Station. C. F. Monroe of the Station's Department of Dairy Industry told of the place soybean oil meal holds in the dairy ration.

Tours to laboratories and greenhouses were conducted by Garth W. Volk, Station agronomist, who explained new techniques and processes being used in the study of soybean nutrition and physiology.



The better extraction qualities afforded by Phillips narrow boiling range solvents can help you produce premium grade finished products more economically. A dependable supply, uniformity and attractive prices are other benefits you'll enjoy when you use Phillips high quality solvents.

Speaking of purity, Phillips Pure Grade Normal Heptane (99.13+ mol percent purity) is now available for exacting chemical uses.

PHILLIPS PETROLEUM COMPANY

Chemical Products Department

BARTLESVILLE, OKLAHOMA

GRITS and FLAKES... FROM THE WORLD OF SOY

"Growing Mung Bean Sprouts for Canning," was an article by W. F. Kuhn of the Oriental Food Products Service, in the December issue of *Food Industries.*

* * * *

Link-Belt Co., Chicago, has announced the retirement of William C. Carter as president of the company. He continues as a director and is succeeded in the presidency by George P. Torrence, formerly executive vice president.

* * * *

Seedburo Equipment Co., Chicago, has appointed Halbert E. Smith, Griggsville, Ill., as representative for the state of Illinois.

* * * *

W. G. Andrews, Archer-Daniels-Midland Co., was a convention speaker of the Southern Paint and Varnish Club at Memphis, Tenn., March 20-21. His subject: "Soybean: Myth or Miracle."

* * * *

Quincy Soybean Products Co., Quincy, Ill., has become the property of the Irving Rosen family, incorporated as a million-dollar corporation. Irving Rosen is president; Marcella Rosen, secretary. Before the death of Alex Sinaiko, Mrs. Rosen's father, the company was conducted as a partnership by Rosen and Sinaiko.

* * * *

"Soybean Facts and Prospects," was title of an article in February *Chicago Farmers Bulletin,* publication of the Chicago Farmers Club.

* * * *

American Mineral Spirits Co., Western, has been organized in California, according to American Mineral Spirits Co., Chicago. Headquarters are at 555 S. Flower St., Los Angeles. Officers of the new firm: David E. Day, executive vice president; and A. J. Falkenberg, secretary-treasurer.

* * * *

Zimmerman Alderson Carr Co., Chicago vegetable oil brokers, announce removal of the firm from 105 W. Adams St., to 221 N. La Salle St., Chicago 1, effective March 17.

* * * *

John W. Evans, ASA director from Minnesota at Montevideo, appeared on the program of the first annual Northwest Farm Forum at Minneapolis March 6-7. He took part in the panel, "How Farmers Can Face Declining Farm Prices."

* * * *

Completion of their new Minneapolis factory at 3800 Washington Ave., N., is announced by Chase Bag Co. The new $400,000 plant is considered by industry authorities to be one of the most modern and complete bag factories in the U. S.

* * * *

A Graphic Summary of Crop Yields and Land Productivity by Townships, 1940-44, has been published by Iowa Department of Agriculture as *Bulletin No. 92.5.* Included are two maps showing average per-acre soybean production by each township in the state for the 5 years.

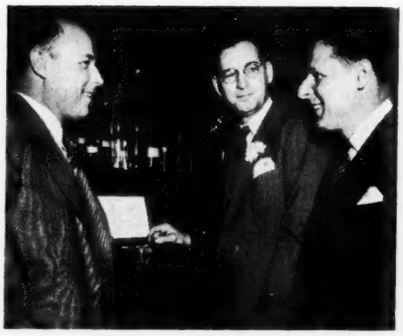
* * * *

Minnesota State Farm Census, 1946, includes soybean acreage figures by counties for last year.

* * * *

Dr. W. E. Carroll, head of the department of animal husbandry, has been named asso-

A-D-M IS HOST TO DRYING OILS GROUP



At ADM open house, left to right, D. S. Bolley, National Lead Co., New York; J. C. Konen, research director for ADM; and A. C. Elm, New Jersey Zinc Co., Palmerton, Penn.

Technicians in the research laboratory of the Archer Daniels Midland Company, Minneapolis, set aside their test tubes March 28 to play host to 225 visiting chemists from 22 states. The guests were attending a symposium on drying oils at the University of Minnesota, sponsored by the American Chemical Society in conjunction with the University Institute of Technology.

The ADM researchers were an important part of the symposium program. In addition, they set up tables in the halls of their modern research building and served dinner as part of an open house.

S. O. Sorenson, technical director of ADM, presented the first paper to the group, speaking on "The Present and Future of Drying Oils." The ADM director of research, J. C. Konen, was on the committee that planned the symposium.

The ADM research endeavor is emphasizing the industrial and nutritional uses of linseed oil meal and soybean oil meal. The materials are used largely in stock feeds. Oil products of ADM are most important to manufacturers of protective coatings, so considerable research is conducted in this field.

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Intelligent and Honest Brokerage Service Since 1908

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NEW YORK MEMPHIS DALLAS SAN FRANCISCO

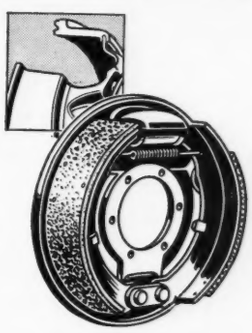
"THINK they last longer? Mister, I KNOW

FORD TRUCKS LAST LONGER!"

That's what Mr. R. G. Colvert of Ardmore, Oklahoma, wrote recently. "One of our Ford Trucks 11 years old," he added, "has gone over 250,000 miles and it's still on the job, with lots of good miles in it!"

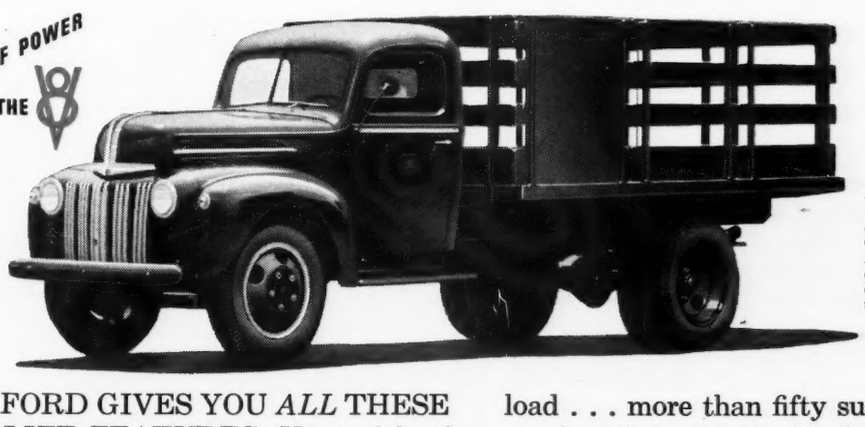
ONE big reason—FORD BRAKES STAND UP!

The wide, heavy, cast drum surfaces of Ford Brakes are non-warping and score-resistant. They are interlocked and fused with steel drum discs during casting, providing great strength and reducing weight. The two shoes are independently anchored, each shoe being actuated by its own hydraulic piston. Adjustment is extremely simple and entirely external. Brakes are exceptionally stable in adjustment. Entry of water and dust is minimized by closely fitted tongue-and-groove design, where edges of drums meet backing plates. Ford brake design promotes long lining life, consistent performance, extra-safe stopping ability and easy pedal pressure.



Ford

THE 6 YOUR PICK OF POWER THE V-8



The Ford heavy duty chassis is available in 1½- and 2-ton nominal ratings, and in 101", 134" and 158" wheelbases in Cab-Over-Engine type and 134" and 158" in Conventional type. Standard Ford 12-foot Platform Stake body and Ford cab on 158" Conventional chassis are shown.

ONLY FORD GIVES YOU *ALL* THESE LONG-LIFE FEATURES: Your pick of power—the great V-8 or the brilliant Ford Six—extra-strength frames, with siderails *doubled* in heavy duty models—new Flightlight, 4-ring, oil-saving pistons—full-floating and ¾-floating axles, with axle shafts free of weight-load . . . more than fifty such endurance-engineering features in all. It's because of this long-life construction that *of all trucks 14 years old or older on the road today, there are more Ford Trucks than all other makes combined!* More than 100 body-chassis combinations to choose from. Ask your Ford Dealer to show you!

MORE FORD TRUCKS IN USE TODAY THAN ANY OTHER MAKE!

ciate director of the Illinois Agricultural Experiment Station. He is responsible for coordination and administration of several hundred research projects.

* * * *

Joe Vancil, Downers Grove, Ill., has been named manager of the National Farm Show to be held at the Chicago Coliseum November 29-December 7. Vancil was formerly associated with United Airlines.

* * * *

Dr. H. Douglas Tate has been appointed manager of agricultural chemicals development for U. S. Rubber Co. He will take charge of the firm's agricultural laboratories at Bethany, Conn., where research is conducted on new chemicals to destroy insects, plant diseases and weeds. He succeeds Dr. George L. McNew, who resigned to head the botany department at Iowa State College.

* * * *

Western Soybean Mills, Sioux Falls, S. D., and its affiliate, Sioux Sales Co., announce opening of new warehouses at Rapid City, S. D., Norfolk, Neb., and Sioux City, Iowa.

* * * *

H. D. Hume Co., Mendota, Ill., have announced plans to double production on their bat and tine reels. The reel is designed to salvage lodged crops including soybeans.

* * * *

Cargill, Inc., is developing extensive plantings of dwarf varieties of sunflowers in the Red River Valley of Minnesota and North Dakota in 1947. Enough seed of varieties Sunrise and Advance have been produced to plant 100 to 150 acres per county.

* * * *

Prescriptions for Glycerides, a 10-page brochure describing the technical story of the Solexol process for refining of vegetable and other oils, has been published by the M. W. Kellogg Co., Jersey City, N. J.

* * * *

Plans of St. Regis Paper Co. for 1947 call for further modernization of plants and completion of projects now under way, President Roy K. Ferguson reports in his recently released annual statement to stockholders. Ferguson predicts 1947 sales volume will exceed 110 million dollars.

* * * *

"This Professional Farm Management Business" was an article by G. G. McIlroy, ASA director from Irwin, Ohio in *Chemurgic Digest* recently. McIlroy is president of Farm Management, Inc. at Irwin.

* * * *

Clyde Hendrix, Clinton, Iowa, president of the feed and soybean division of Pillsbury Mills, Inc., is a radio transmitter fan. He operates station W Zero HBG. Hendrix held a commercial license in the 20's, and built and operated a broadcasting station in central Illinois.

* * * *

"Using Soybean Lecithin in the Macaroni Industry," part II, by J. J. Winston and B. R. Jacobs, is an article in the March issue of *Food Industries.*

* * * *

The Boone Valley Cooperative Processing Association, Eagle Grove, Iowa, handled almost half a million bushels of soybeans during its last fiscal year for 39 co-ops in north central Iowa which own and operate the organization. A new department was added to manufacture "Co-op" open formula feed.

* * * *

A recent U. S. visitor was Aage Dalgaard, technical oil expert for the East Asiatic Co., Copenhagen, Denmark, with oil meal plants in many foreign countries. Mr. Dalgaard visited American soybean and cottonseed processing plants to study latest development in these industries.

* * * *

Twenty-ninth Annual Report of Phillips Petroleum Co. and Subsidiary Companies covering 1946 has been issued at Bartlesville, Okla.

* * * *

Bulletin 520, entitled "Lincoln: A Midseason Soybean," by C. M. Woodworth and L. F. Williams, has been issued by the Illinois College of Agriculture, Urbana, Ill.

* * * *

O. K. Quivey, manager of agricultural development of the Baltimore and Ohio Railroad, was elected president of the American Railway Development Association at its annual meeting held at Dallas, Texas in March. Mr. Quivey has long been an active worker in behalf of the soybean crop, particularly in Ohio.

* * * *

A. H. Clarke was elected vice president in charge of the newly formed production department of Bemis Bro. Bag Co. at a recent meeting of the board of directors in St. Louis, Mo.

* * * *

Field Warehousing on Your Premises, a booklet describing field warehousing, has been issued by Lawrence Warehouse Co. Copies may be obtained by addressing J. H. Peet, advertising manager Lawrence Warehouse Co., 37 Drumm St., San Francisco 11, Calif.

This is
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Advertisement!
... its business is to sell YOUR soybeans

● Industry is an exacting buye
product or material must be prec
right for its purpose and when n
doesn't provide this "rightness,"
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ways to make the necessary co
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enjoyed a rich background of ex
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oil to the needs of the paint and
nish industry. The advertisemen
the facing page was written and
inally published in the paint t
journals to remind those man
turers that Kellogg Soybean Oils
be relied upon to make quality
tective coatings.

This is good news for that indu
which faces a great unfilled dem
It is also good news for the soy
grower who, because of Spencer
logg research and the constant
motion of Spencer Kellogg Soy
products, will find increased sup
for the marketing of larger and
soybean crops.

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Buyers and processors of soybeans,
of soybean flours and meal, refiners of
soybean oil, producers of soybean sh
ings, manufacturers and refiners of
trial soybean oils, researchers and de
ers of new and valuable soybean pro

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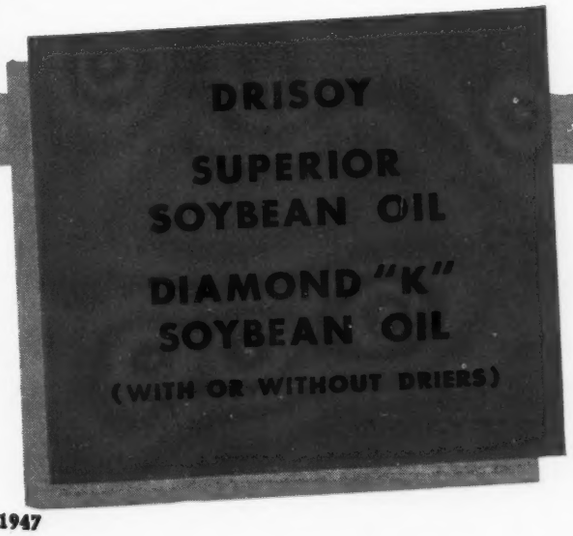
DECATUR, ILL. CHICA
DES MOINES, IOWA MINNEAPOL

KELLOGG SOYBEAN OILS

● Spencer Kellogg and Sons, Inc., have been processors of soybean oil for many years. In the past twenty years the U. S. soybean production has multiplied many times and the soybean today is an agricultural crop of prime importance to this country. Six great Kellogg mills have been built to handle soybean processing maintaining the position of this Company as an outstanding exponent in soybean development.

In the field of industrial oils Spencer Kellogg and Sons, Inc., have developed a group of products that parallel and supplement its older linseed oil line. Paramount is DRISOY, a revolutionary achievement of the Kellogg Research Laboratories, a fully reliable drying oil, a perfected paint and varnish vehicle. Other Kellogg special soybean oils, including alkali refined and oxidized oils, also have found important industrial applications. The technological development of Soybean oil is still only in its infancy. Research on it continues constantly in the Spencer Kellogg laboratory and new developments of outstanding value are to be confidently expected.



KELLOGG'S THE TEST TELLS 1894

SPENCER KELLOGG AND SONS, INC.

BUFFALO 5, N. Y.

"The First Name in Vegetable Oils"

WASHINGTON Digest

Oil and Fat Controls

A major congressional fight appears to be looming over the question of keeping import and export controls, allocation and priority authority granted in the Second War Powers Act beyond June 30.

Congress has extended these controls until June 30, and must reach a decision between now and then. So for another 90 days, controls will be continued on fats and oils, oilseeds, oil meal and cake, and fatty acids.

The Administration is anxious for Congress to make a firm decision at an early date, so it will know what can be done about meeting its international commitments. Congress wants more time to think the question out.

The four major powers in the act of concern to agriculture are:

1. Import controls, which keep U. S. buyers from "raiding" world markets of scarce materials, mainly fats and oils.

Dropping these controls on fats and oils, as proposed by the House, would let in more Philippine copra, and might for a time raise world fats and oils prices.

The additional copra imports from July 1 to harvest time which would result from dropping the controls wouldn't be apt to increase U. S. supplies greatly, but might tend to depress U. S. vegetable oil prices later if the accumulation became large.

2. Export controls, which keep foreign buyers from "raiding" U. S. markets of scarce commodities, such as protein meal, oilseeds, and grain.

Dropping these controls would boom U. S. prices of commodities badly needed in other countries. This would come about by foreign governments bidding against each other for U. S. supplies, and against domestic processors.

For instance, one of the better-off Scandinavian countries is reported to have placed a firm order for 20,000 tons of 1947 U. S. wheat in the expectation export controls will be dropped July 1.

There is considerable trade pressure, especially among grain interests, to drop these controls. However, a number of grain men oppose abandoning these controls, fear the trade couldn't handle the needed grain exports, and that the confusion in the market might give the industry a black eye.

3. Allocation authority, which gives the government power to control the domestic use of scarce goods, to order "set-asides" for export or special domestic purposes.

Should these controls be dropped, the government would no longer have power to order manufacture of cordage fibers into binder twine, to allocate machinery for export, to curb the use of milling wheat and rice for distilling and brewing purposes, or to allocate fertilizer for export.

4. Priority authority, which gives the government first call on delivery of scarce goods. Under this authority, the government has power to direct the movement of boxcars to move essential materials, such as wheat for export, ahead of regular schedules.

The outcome on extension of all or part of these controls isn't likely to be known until close to the June 30 deadline.

To Increase Acreage?

A 1947 soybean production of 188,739,100 bushels, 4 percent below last year's record crop, is indicated by the Department of Agriculture's Crop Reporting Board.

This is based on a 5-year average yield of 18.7 bushels per acre, and assumes the same percentage of the planted acreage harvested as during the last two years. Last year's average yield was 20.5 bushels per acre.

The prospective acreage of soybeans to be grown alone for all purposes is 12,213,000 acres. This is a 6 percent increase over 1946.

The indicated acreage of soybeans to be harvested for beans is 10,093,000 acres, a 5 percent increase over last year.

In the Cornbelt states where over 80 percent of the beans are grown, a 6 percent increase in harvested acreage over last year is estimated.

In these states, only Ohio and Michigan indicate harvested acreage will fall below last year.

Here are the official 1947 acreage estimates, with comparisons:

By PORTER M. HEDGE

Washington Correspondent for The Soybean Digest

HARVESTED FOR BEANS
Thousand Acres

State	1946	1947	% of 1946	1947 Goal	1947 Planted Acre Goal
N. Y.	8	6	75	6	10
N. J.	9	8	89	10	27
Pa.	21	20	95	20	58
Ohio	903	848	94	1,300	922
Ind.	1,334	1,382	104	1,450	1,571
Ill.	3,193	3,271	102	3,700	3,529
Mich.	86	84	98	125	110
Wis.	33	35	106	40	76
Minn.	610	760	125	570	841
Iowa	1,520	1,697	112	2,000	1,746
Mo.	718	800	111	700	914
N. Dak.	6	6	100	12	8
S. Dak.	19	33	174	30	37
Neb.	23	27	117	20	30
Kans.	198	216	109	209	241
Del.	33	35	106	36	58
Md.	32	32	100	32	74
Va.	67	76	113	90	150
W. Va.	1	1	100	2	23
N. C.	212	204	96	250	342
S. C.	16	14	88	10	40
Ga.	9	6	67	10	52
Ky.	87	74	85	70	158
Tenn.	45	52	116	80	214
Ala.	25	23	92	30	212
Miss.	70	73	104	85	244
Ark.	295	275	93	310	387
La.	27	28	104	35	114
Okla.	6	7	117	10	17
Texas	—	—	—	2	8
U. S.	9,606	10,093	105	11,244	12,213

WOODSON-TENENT LABORATORIES

P. F. WOODSON E. H. TENENT

Analytical Chemists

SOYBEANS - CAKE - MEALS - OILS

Laboratories: Memphis, Tenn., Little Rock, Ark., Blytheville, Ark., Cairo, Ill.

"OVER ~~500~~ 600 MILLION DOLLARS WORTH OF PRODUCTS ANALYZED SINCE 1935"

Exports in 1946 Soybean and soybean oil exports in 1946 (in terms of oil) reached an all-time peak of 111,968,000 pounds. This is more than double the prewar 5-year average of 41,311,000 pounds.

Canada, Cuba, Belgium - Luxemburg, France, The Netherlands, and Spain were the principal importing countries of U. S. soybean oil.

Out of last year's total exports, 85,811,000 pounds were shipped as oil, and 26,157,000 pounds (oil equivalent) were shipped as soybeans.

European countries, hard up for fats, are reported by the Office of Foreign Agricultural Relations to have offered as high as $4.20 a bushel for soybeans, f.o.b. North China ports, for Manchurian soybeans.

Plans for Export The recent boost in exports of protein meals — 110,000 tons in all — worked the domestic price up far enough that the Department of Agriculture plans no further allocations for export for some time.

The aim is to work out a balance so that domestic protein meal prices will remain attractive, but not get so high as to restrict use or work a hardship on producers.

Later in the season when USDA can get better measure of prospective supplies and carryover, the question of exports will again be reopened.

There is plenty of foreign demand for protein meal, so the price can be stabilized at about the desired level.

Margarine Question Three House bills, all aimed at repealing Federal taxes on margarine, have been introduced thus far in this session of Congress.

The bills are: HR 159 by Abernethy of Mississippi, HR 1227 by Celler of New York, and HR 2245 by Rivers of South Carolina.

The expectation is that none of the bills will be given serious consideration at this session of Congress. However, it is likely that a margarine tax repeal measure will be taken up next year, when the Republican-controlled Congress gets around to developing its long-range farm program.

From Indies Copra exports from The Netherlands East Indies this year are now estimated at about 220,000 short tons (2,000 lbs.), or 44.35 percent of prewar.

In the first quarter of this year, 42,000 tons have been shipped out of the Indies, all going to The Netherlands. The Indies is normally the second largest exporter of coconut products. Prewar average annual shipments were about 496,000 tons.

SAYS ROOM FOR BOTH BEANS AND DAIRYING

Soybeans were called "the lusty infant of American agriculture which is causing shifts in grain acreages, building country processing plants and changing formulas for all young and growing things including babies, lambs and pet poodles," by A. W. Erickson of the Field Notes Crop Reporting Service, at the Farmers Elevator Association of Minnesota meeting at Minneapolis in March.

"This crop is also giving magazine writers a lot of startling things to tell their readers about plastics and the many knobs made from them," said Erickson. "They are also giving the dairy industry a headache. The butter people wish that all soybeans were made into diamond-hard plastics that would break the teeth of everyone trying to eat them.

"There are many factors favoring the production of beans. First they are a quick maturing, late planted crop. Oats have to be planted before corn planting, beans usually planted after corn. Beans have shown their ability to produce a more mature crop in early frost seasons than corn. Beans stand up well after they have ripened, their oily nature helps them shed water and dry out quickly after rains. Beans standing in the fields over winter do not lose a great part of the beans. Some are lost but they can be harvested throughout the winter.

"Now most beans are planted in rows, cultivated like corn which holds down the weeds and keeps the ground clean. They are a 100 percent combine harvested crop. Weed seed and trash are easily cleaned out from the beans. When dry enough they present no problem to the elevator handling them.

"Beans will cause a lot of arguments in the area where the members of this association do business because it is the great dairy country. There are million of acres of grass lands unfit for bean culture where the dairy and beef animals graze to advantage. These same areas also consume much of the meal and cake from soybeans as well as corn and oats from the areas producing such grains. There are large areas where beans can be grown profitably which have not been growing beans to date. There is ample room for both soybeans and dairying. The country elevator operator will be a connecting link between the two."

—s b d—

NEW ORLEANS MEETING

The technical program for the 38th annual meeting of the American Oil Chemists' Society to be held at the Hotel Roosevelt, New Orleans, La., on May 20-22, 1947 will include two symposia, one on analytical methods and the other on industrial products from oilseed meals and proteins. A. M. Altschul of the Southern Regional Research Laboratory, New Orleans, is program chairman.

Election of officers will take place at the annual meeting on May 22. Presiding officer will be the Society president, S. O. Sorenson, of the Archer-Daniels-Midland Co., Minneapolis. Chairman of the nominating and election committee is R. R. King of the Interstate Cotton Oil Refining Co., Sherman, Texas. General convention chairman, also hotel chairman, is Col. H. P. Newton of the Southern Regional Research Laboratory.

--- MARKET STREET ---

We invite the readers of THE SOYBEAN DIGEST to use "MARKET STREET" for their classified advertising. If you have processing machinery, laboratory equipment, soybean seed, or other items of interest to the industry, advertise them here. Rate: 5c per word per issue. Minimum insertion $1.00.

FOR SALE—Certified Lincoln, also Certified Illini seed beans in 2 bushel bags. J. Harold Canterbury, Cantrall, Ill.

AVAILABLE—One Hess Tower Gravity Feed Drier complete with elevator, Reeves variable feed mechanism for regulating discharge. Uses steam heated air as drying medium. Will dry shelled peanuts at rate of 7400 pounds per hour from 8% to 4%, shelled tung nuts at rate of 3400 pounds per hour from 15% to 7%. Can be used for drying soybeans, oats, shelled corn, cover crop seeds, etc. Unit is new, has not been used. If interested contact Florala Nut Oil Company, Florala, Ala.

WANTED—Raymond Air Separator, 8′, 10′ or 12′ in diameter with double whizzer, for export. R. L. Thomson, 50 Church St., New York 7, New York.

WANTED—Back issues of the *Soybean Digest*. We need copies of early issues to complete our files. We will pay 20c each or credit your subscription for the following: any issue of Vol. I; Nos. 1 and 3 of Vol. II; No. 7 of Vol. III. Address Soybean Digest, Hudson, Iowa.

Where ground is limited, valuable space can be saved by storing flowable bulk materials in Neff & Fry superconcrete stave silos. What's more, conveying distances are shortened, reducing labor and equipment costs.

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Burdette—Burdette Plantation (G. A. Hale), 2,000 bu. certified Ralsoy; 1,000 bu. registered Burdette 13 (improved Arksoy); 2,000 bu. registered Burdette 19 (improved Arksoy).

Scott—Robert L. Dortch Seed Farms, 1,500 bu. certified Dortchsoy No. 7; 1,500 bu. certified Dortchsoy No. 2; 1,500 bu. certified Dortch's Improved Ogden.

INDIANA

Walton—Hopper Farms, Rt. 2, 600 bu. certified Lincoln.

IOWA

Marshalltown—Dale McCubbin, Rt. 5, 900 bu. Lincoln, passed field inspection.

Remsen—Frank Lenertz, 625 bu. certified blue tag Lincoln, 95% germination; 400 bu. certified blue tag Earlyana, 93% germination.

KANSAS

Westphalia—Leo Hermann, Rt. 1, 230 bu. certified Hong Kong.

MINNESOTA

Delavan—Julian Perrizo, certified Wisconsin No. 3 Manchu; uncertified Earlyana.

Faribault—Farmer Seed & Nursery Co., Ottawa, Mandarin, Habaro, Manchu Wisconsin 606, Manchu Wisconsin No. 3, Earlyana (uncertified only), and Richland, both certified and uncertified.

Lu Verne—H. F. Boucher.

New Richland—Sam L. Zellweger & Son, 500 bu. Harbaro, 95% germination, field inspected.

MISSOURI

Bertrand—Harold Hill, Rt. 1, Box 467, 300 bu. certified Ralsoy.

Kennett—Kennett Grain & Seed Co., 3,000 bu. certified Ralsoy.

Marshall—MFA Seed Division, Box 515.

Richmond Heights 17—Soybean Johnson, 1337 McCutcheon Heights, 200 bu. Aoda vegetable soybeans; purity 99.9%; germination 90%.

Sikeston—C. F. McMullin Estate, 270 McCoy-Tanner Bldg., truck and car lots Ralsoy, Missouri state certified from own production.

NEBRASKA

Elk City—Howard L. Wahlgren, 400 bu. certified Lincoln.

Wood River—McGuire Bros., Rt. 3, 1,500 bu. certified Lincoln.

—s b d—

SAYS SOY OIL MAY REPLACE LINSEED

Chemically treated soybean oil may soon replace linseed oil as a base for paints, linoleum, and many other products, thus freeing American industry from reliance on imported flaxseed, Dr. Alexander Schwarcman, research director of Spencer Kellogg & Sons, Inc., recently told a meeting of the Pittsburgh section of the American Chemical Society.

Calling the development of soybean farming in the United States in the last 15 years a "great agricultural epic," Dr. Schwarcman declared that 200 million bushels of soybeans are being harvested annually, yielding over a billion pounds of valuable oil.

"Today liquid soya oil is used as a salad, mayonnaise, and frying oil," he said, "and when hydrogenated, it is used for general culinary purposes and as a substitute for butter. Further definite progress has been made imbuing soya oil with drying qualities similar to linseed oil, with a splendid prospect of freeing the United States from importing flaxseed for production of linseed oil."

Of the billion pounds of linseed oil consumed annually, about half is extracted from flaxseed grown in this country, the rest being imported from Argentina, Schwarcman said.

"Linseed oil is used entirely for paint, varnishes, linoleum, and allied industries," Dr. Schwarcman asserted. "Castor oil is used in a great variety of industries, mostly for textiles, Duco spraying, lacquers, artificial leather, etc. By chemical treatment, called dehydration, it acquires fine drying properties and is now widely used as a substitute for tung, or chinawood oil."

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FULTON BAGS made in our plants from the raw cotton to the finished bag assures you a safe and economical container for shipping soybean meal.

Quality — Appearance — Strength — these factors are all "in the bag" when you use FULTON BAGS for your meal, pellets and feeds. FULTON artcraft printing of your brand is a valuable sales aid. Remember, too, that your soybean meal will not heat when stored in cotton bags. For the best in cotton bags, always specify FULTON.

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LEGUME-AID

The strains of bacteria in this famous inoculant are field selected, laboratory checked and crop tested. The scientifically devised inner-lined carton package protects their potency. The LEGUME-AID unit for soybeans contains exactly enough to inoculate five bushels of seed. Order what you need. Open each package fresh as you treat each batch of seed. No waste, no loss, no troublesome measuring. Tell your dealer you want LEGUME-AID.

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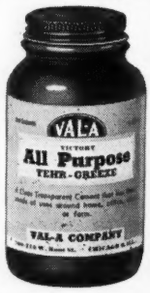

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CHICAGO 9, ILL.

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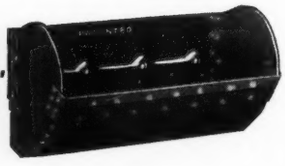
are MADE STRONGER
will LAST LONGER
have
GREATER CAPACITY



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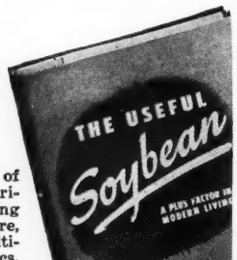

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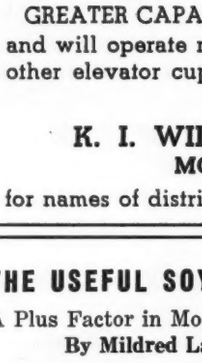

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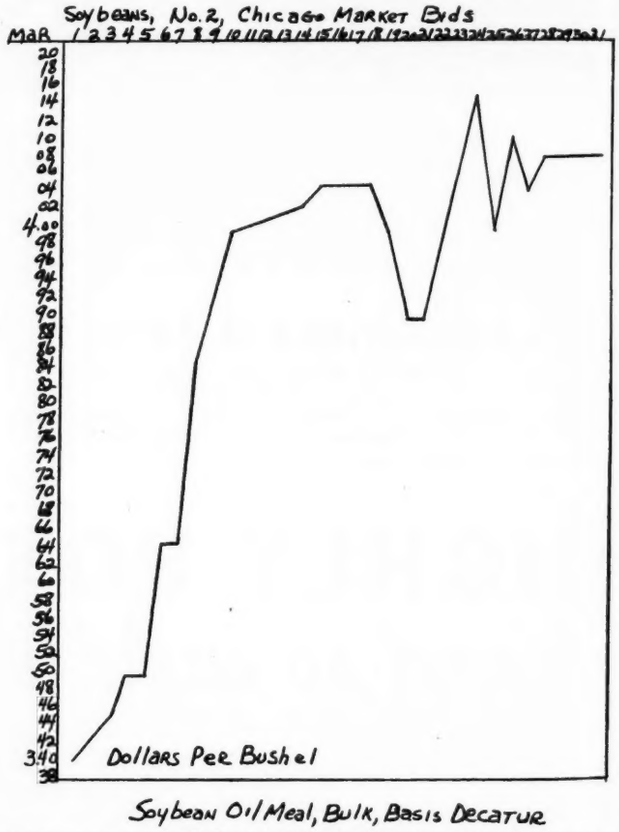
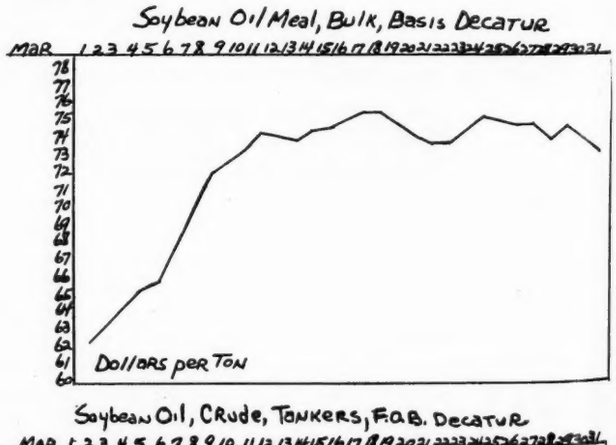
In The MARKETS

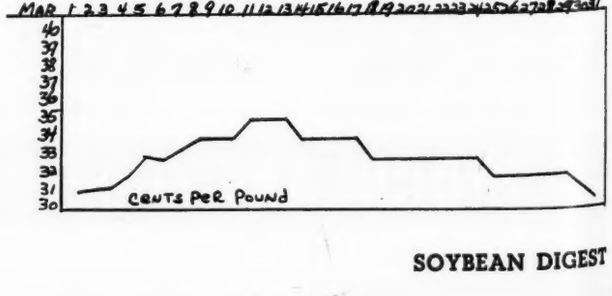
SOYBEANS, OIL AND MEAL REACH YEAR'S HIGH

Soybeans and soybean oil meal continued the spectacular market rise begun in February the first 2 weeks in March. Both soybeans and meal reached new highs for the year last month. Crude soybean oil registered a gain of 3 cents the first 11 days of March. However, this gain was lost by month's end.

No cash sales for soybeans were reported on the Chicago market during the month. A factor in both soybean and meal markets was the light offerings of soybeans with processors fearful that they







will be unable to continue full production straight through the season due to insufficient supplies.

Chicago market bids for No. 2 soybeans were quoted at $3.40 March 1. High point of month was $4.15 reached the 24th, with bids of $4.00 being quoted March 31.

The oil meal market continued its February comeback opening March 1 at $62.50, bulk Decatur basis, and reaching the month's high of $75.50 the 17th and 18th.

Meal market was unusually active the first 2 weeks with large tonnages contracted for. Most processors were sold through March and April. They were accepting no new orders for earlier than May and June. Factors in the market were export buying of oil meal and soy flour, and sales of soy flour to the army.

Trading in oil meal was limited the last half of the month, with little spot meal being offered, and buyers not greatly interested in deferred shipments at prices offered. Production was at an all-time high with disappearance since October exceptionally heavy, according to Production and Marketing Administration. Processors were becoming increasingly concerned about their ability to secure sufficient supplies of soybeans to keep operating. Bulk meal market closed at $73.50 March 31.

The soybean oil market followed the upward trend of the meal and bean markets the first of the month, with opening quotation for crude soybean oil, Decatur basis at 31 cents, and working up to 35 cents the 11th. Trading was relatively light due to a tight supply situation.

But the oil market eased off some the last half of the month, with offerings more plentiful.

The New York futures market for soybean oil was at a standstill most of the month.

***SOYBEAN MEAL FUTURES — Memphis, March 31**
Contract—100 tons
Decatur (sacked basis)

May	$68.50	@	70.25
July	65.50	@	66.50
October	58.00	@	59.25
December	56.00	@	58.50
January, 1948	56.00	@	58.50
March	56.00	@	58.00

Sales, none.

Decatur (bulk basis)

May	$64.50	@	66.00
July	62.50	@	64.00
October	54.00	@	56.00
December	52.50	@	55.00
January, 1948	52.00	@	55.00
March	52.00	@	54.00

Sales, none.

***N. Y. SOYBEAN OIL FUTURES, March 31**

	Close	Pr. cl.
May	31.00	32.00
July	31.00	32.00
September	30.00	31.00
October	27.00	29.00
December	23.50	24.00
January, 1948	23.00	22.50
March, 1948	23.00	22.50

Total sales, none.
*Reported by the Chicago Journal of Commerce.

• SOYBEAN INSPECTIONS DROP SHARPLY IN FEBRUARY. Inspected receipts of soybeans in February dropped sharply to a total of 2,681 cars compared with 6,139 cars in January, according to inspectors' reports to the grain branch of the Production and Marketing Administration. The average for the month of February for the crop years 1940-45 was 3,431 cars. Inspected receipts for October through February this season were 65,245 cars compared with 67,107 cars for the same period last year.

The quality of the soybeans inspected in February also was lower than for the preceding month, only 58 percent grading No. 2 or better compared with 68 percent in January. Of the October-February receipts this year, 69 percent graded No. 2 or better compared with 91 percent last season.

Inspections of soybeans in February included the equivalent of 5 cars inspected as cargo lots and truck receipts equal to about 33 cars.

• SOYBEAN OIL EXPORTS. In 1946 the United States soybean and oil exports reached an all-time high, reports USDA's Office of Foreign Agricultural Relations. The total in terms of oil amounted to more than 111 million pounds (equivalent to 12 mil-

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In several tests—emergence of treated seed over untreated seed was improved by as much as 10 to 20 per cent.

HEAVIER STANDS ASSURED

Spergon gives seed immunity to soil-borne fungi, which tend to cause decay and damping off.

It accelerates emergence—insures heavier stands and bigger yields.

ECONOMICAL—SAFE TO USE

Spergon treatment is inexpensive. It takes but 2 oz. of Spergon to protect a bushel of seed.

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lion bushels of beans) compared with 100 million a year earlier and 51 million for 1937-39. The bulk of last year's shipments was in the form of oil, with Canada, Cuba, Belgium, France, the Netherlands, and Spain the principal recipients. In many instances soybean-oil exports were in exchange for other types of oil needed in the United States.

UNITED STATES: SOYBEAN AND OIL EXPORTS 1946 with Comparisons

Country of Destination	Refined Soybean Oil			Soybeans		
	Average 1935-39 1,000 Lbs.	1945 1,000 Lbs.	1946 1,000 Lbs.	Average **1937-39 1,000 Bu.	1945 1,000 Bu.	1946 1,000 Bu.
North America:						
Canada	152	3,659	10,570	1,197	1,317	1,265
Cuba	3,833	13,005	9,524	.....	1	1
French West Indies	18	2,997	1,182	.....	.....	.....
Iceland	23	1,782	2,015	.....	.....	.....
Others	917	1,619	1,781	62	.....	.....
South America (Total)	301	790	1,460	.....	.....	.....
Europe:						
Belgium-Luxembourg	.....	.....	8,302	16	665	1
Czechoslovakia	.....	.....	4,309	.....	37	.....
France	.....	.....	12,971	52	2,929	250
Italy	4	.....	5,679	.....	.....	.....
Netherlands	.....	.....	9,336	2,006	603	358
Spain	.....	874	10,612	.....	.....	.....
Switzerland	100	.....	1,277	1	.....	3
United Kingdom	2	.....	3,031	59	501	422
Others	379	902	707	1,400	839	554
Soviet Union	.....	11,367	1	.....	1	3
Asia	54	503	1,117	.....	12	48
Africa (Total)	642	11	750	.....	.....	.....
Oceania (Total)	42	584	393	.....	1	1
Total	6,467	38,093	85,017	4,793	6,906	2,906

Compiled from official sources.

** Not separately classified in Foreign Commerce and Navigation prior to January 1, 1937.

Since liberation, European countries have been endeavoring to obtain American soybeans from the United States. According to reports, these countries have recently offered as high as $4.20 per bushel f.o.b. North China ports for Manchurian soybeans.

● COMMERCIAL SOYBEAN STOCKS. Production and Marketing Administration's commercial grain stocks reports for March.

U. S. Soybeans in Store and Afloat at Domestic Markets	Mar. 4	Mar. 11	Mar. 18	Mar. 25
Atlantic Coast	350	239	308	262
Gulf Coast	185	186	186	186
Northwestern and Upper Lake	3,182	2,986	2,773	2,772
Lower Lake	6,868	6,347	5,781	5,636
East Central	4,676	4,391	4,159	3,670
West Central Southwestern & Western Pacific Coast	2,464	2,354	2,100	1,940
Total current week	17,725	16,503	15,307	14,466
Total Year ago	16,429	15,754	14,720	13,367
U. S. Bonded Soybeans in Store and Afloat at Canadian Markets				
Total current week	89	79	69	79
Total North American Commercial Soybean Stocks				
Current week	17,814	16,582	15,386	14,545
Year ago	16,429	15,754	14,720	13,367

● MARGARINE PRODUCTION. Production of margarine in the United States in 1946 totaled 572 million pounds, 7 percent less than a year earlier but 61 percent more than the 1937-41 average. The decline from 1945 reflected procurement for export and for use by the armed forces. Movement of margarine into civilian trade channels increased slightly. However, disappearance per person declined from 4.0 pounds in 1945 to 3.8 pounds in 1946, because of the large increase in the civilian population in 1946.

Again in 1946 cottonseed oil was the leading oil used in margarine, with soybean oil a close second. The relative quantities of fats and oils to be used in margarine in the first 9 months of 1946 was determined largely by allocations of edible oils to manufacturers under War Food Order 29. When controls were ended in October, use of cottonseed oil increased more rapidly than use of soybean oil. Use of soybean oil in margarine probably will remain relatively large during the remainder of the 1946-47 marketing year, because of the small output of cottonseed oil and large production of soybean oil this year.

● STANDARD SHORTENING SHIPMENTS. Reported by members of Institute of Shortening Mfgrs., in pounds.

Week Ending	
March 8	9,436,110
March 15	10,723,440
March 22	10,895,112
March 29	7,633,618